BASIC EDUCATION IN DEVELOPING COUNTRIES

HEARING

BEFORE THE

INTERNATIONAL TASK FORCE

OF THE

SELECT COMMITTEE ON HUNGER

HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

FIRST SESSION

HEARING HELD IN WASHINGTON, DC, MARCH 5, 1987

Serial No. 100-3

Printed for the use of the Select Committee on Hunger

U.S. GOVERNMENT PRINTING OFFICE
72-722 WASHINGTON : 1987

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

H961-35

SELECT COMMITTEE ON HUNGER

MICKEY LELAND, Texas, *Chairman*

TONY P. HALL, Ohio
BOB TRAXLER, Michigan
LEON E. PANETTA, California
VIC FAZIO, California
SAM GEJDENSON, Connecticut
PETER H. KOSTMAYER, Pennsylvania
BYRON L. DORGAN, North Dakota
BOB CARR, Michigan
TIMOTHY J. PENNY, Minnesota
GARY L. ACKERMAN, New York
MIKE ESPY, Mississippi
FLOYD H. FLAKE, New York
JAMES H. BILBRAY, Nevada
KWEISI MFUME, Maryland
ELIZABETH J. PATTERSON, South Carolina

MARGE ROUKEMA, New Jersey
BILL EMERSON, Missouri
SID MORRISON, Washington
BENJAMIN A. GILMAN, New York
ROBERT F. (BOB) SMITH, Oregon
DOUG BEREUTER, Nebraska
FREDERICK S. UPTON, Michigan
——— ———
——— ———
——— ———

CONTENTS

Page

Hearing held in Washington, DC, March 5, 1987 1

Statement of:

- Bereuter, Hon. Doug, a Representative in Congress from the State of Nebraska, opening statement of 2
- Brennan, Dennis, Deputy Assistant Administrator for Technical Cooperation, Bureau for Science and Technology, Agency for International Development (A.I.D.) 5
- Hall, Hon. Tony P., a Representative in Congress from the State of Ohio, opening statement of 1
- Leland, Hon. Mickey, a Representative in Congress from the State of Texas, opening statement of 2
- Windham, Douglas M., Professor of Education and Professor of Public Policy, State University of New York at Albany 11
- Zagorin, Ruth K., former Director, Office of Human Resources, Agency for International Development (A.I.D.) 7

Prepared statements, letters, supplemental material, et cetera:

Brennan, Dennis, Deputy Assistant Administrator for Technical Cooperation, Bureau for Science and Technology, Agency for International Development (A.I.D.):

- Peace Corp volunteers 83
- Prepared statement of 73
- Responses to questions submitted by Hon. Tony P. Hall 84

Charts and tables:

- Countries in greatest need of basic education (two tables) 66
- Effect of nutrition education for mothers on children's nutritional status (chart) 68
- Fiscal year 1987 summary of obligations (in $000) (table) 70
- Fiscal year 1987 summary of obligations (in $000), The Africa Bureau (table) 72
- Funding percentages for education subsectors for the 1980's (table) 69
- Funding percentages for education subsectors for the 1980's: The Africa Bureau 71

Hall, Hon. Tony P., a Representative in Congress from the State of Ohio, prepared statement of 27

Leland, Hon. Mickey, a Representative in Congress from the State of Texas, prepared statement of 29

Stanton. J. William, counselor to the president, the World Bank:

- "Investing in Children, The Economics of Education," World Bank, 1986, publication entitled 52
- Letter to Congressman Tony Hall, enclosing statement, dated March 3, 1987 33

Windham, Douglas M., Professor of Education and Professor of Public Policy, State University of New York at Albany, prepared statement of 97

Zagorin, Ruth K., former Director, Office of Human Services, Agency for International Development (A.I.D.), prepared statement of 85

BASIC EDUCATION IN DEVELOPING COUNTRIES

THURSDAY, MARCH 5, 1987

House of Representatives,
International Task Force,
Select Committee on Hunger,
Washington, DC.

The task force met, pursuant to call, at 10:05 a.m., in room 2447, Rayburn House Office Building, Hon. Tony P. Hall, chairman of the task force, presiding.

Members present: Representatives Leland, Bereuter, Gilman, and Penny.

OPENING STATEMENT OF HON. TONY P. HALL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

Mr. Hall. This is our first official International Task Force meeting. We've had other meetings, but this is the first time this session that this International Task Force has had. We're charged with investigating the causes and dimensions of world hunger and developing legislative recommendations to address the issues raised.

We have explored many issues relating to hunger, including basic health care, food assistance programs, microenterprise credit, and humanitarian assistance to sub-Saharan Africa.

Today we are looking at the issue of basic education as a crucial link in expanding opportunities for poor and hungry people to provide for themselves. Lack of basic reading, writing, and arithmetic skills prevent millions of people in the developing world from adequately entering the economic mainstream of their societies and gaining access to employment and services. In Africa, half of the school-age population does not attain the basic literacy and numeracy needed for productive involvement in the development process. The situation is worse for rural populations than urban populations and for women than for men. In South Asia, where illiteracy among men averages 41 percent, illiteracy among women is a shocking 69 percent of the total adult female population.

Common sense tells us that education is necessary to promote the social and economic development of people and nations. Yet worldwide, literacy rates are declining as education budgets face relentless pressures in debt-ridden countries, and funds for maintaining and improving school systems decline.

Today we have with us a representative of the Agency for International Development who can tell us what the U.S. Government is doing to address the pressing need for improving educational systems in less developed countries. We also have with us two witnesses who are experts in the field of international education to explore some of the issues relating to the economics of educational assistance, and possibilities for improving education programs worldwide.

Before we hear from our witnesses, we have a slide presentation on the economics of education. While World Bank officials are not able to testify before Congress, they have graciously made available this valuable and informative visual presentation for our use. Before we go into the slide presentation, we have the ranking minority member of this task force, Mr. Bereuter on my right, and the chairman of the Select Committee on Hunger, Mr. Leland, on my left. And I would just ask those men if they have any statements they would like to have put in the record.

[The prepared statement of Mr. Hall appears at the conclusion **on the hearing, see p. 27.**]

OPENING STATEMENT OF HON. DOUG BEREUTER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEBRASKA

Mr. BEREUTER. Mr. Chairman, I would simply say I look forward to working with you during the 100th Congress, in a general sense, with proceeding, I look forward to the presentation and the testimony here today. And beyond that, I have nothing further to say at this point. I look forward to what we're going to hear.

Thank you.

OPENING STATEMENT OF HON. MICKEY LELAND, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Chairman LELAND. Mr. Chairman, thank you very much. Let me just offer my statement in full for the record and just say to you that I really am very much interested in the topic that you have raised today and I think that it is most creative and one that has drawn from a great resourcefulness. I'm very concerned about the literacy of many countries that we have to deal with in terms of how that relates to people getting an adequate diet. I think that having gone to Ethiopia where the illiteracy rate is probably highest in the world, I can't tell you how much my heart just goes out to those poor people there and I know that the problem is multiplied manyfold throughout the developing third world nations.

Mr. Chairman, I would just like to again commend you for your efforts in this area. Let me also apologize. I'm going to have to leave to go back to the Subcommittee on Telecommunications where the insider trading issue is being raised there and I'm very much involved with that and I commend you for bringing forth the expert witnesses that you have here and look forward to working with you on this issue in the future.

[The prepared statement of Mr. Leland appears at the conclusion **of the hearing, see p. 29.**]

Mr. HALL. Thank you, Mr. Chairman. I appreciate those kind words. And again, I want to acknowledge our thanks to the World Bank for making available this excellent slide presentation.

And with that, I think we ought to get started on the slide presentation. I understand we're going to show it on the far wall there.

[Slide presentation:]

INVESTING IN CHILDREN, THE ECONOMICS OF EDUCATION

NARRATOR. Each day, nearly 1 billion students go to school. Two out of every three of them live in developing countries. By the year 2000, and that's less than 15 years from now, four out of every five students worldwide, will live in developing countries.

The question educational experts and economists are asking is, will schools in developing nations be any better in the year 2000 than they are now in the 1980's.

Today, many of these schools lack basic instructional materials, such as books, and teachers, many of whom are poorly educated themselves, are expected to educate several grades at one time with only a blackboard and some chalk.

Conditions such as these have caused the academic achievement of many students to be very low, and more than half the adult population in developing countries lacks a skill that's critical to modern survival. That skill is literacy.

Leading educators and economists are in agreement. Education in developing nations is in crisis, a crisis, they say, that may dramatically retard economic growth.

Many economists have concluded that, especially for developing countries, education should be the first investment, that building a modern infrastructure without a literate workforce often proves to be costly.

VOICE. After the last war, world war, the countries, that are low-income countries, that went all out for industrialization, paid a very high price.

NARRATOR. Nobel prize winning economist Theodore Shultz, who won the award in 1979 for his work in the field of agricultural economics and human capital.

Mr. SHULTZ. The old story. If you had all the technology and everything that is used in Iowa agriculture, and you say to the people in Algeria, here it is, you put it all on a platter, make it all the same in every respect, the highways, the tractors, the genetics, the plants and animals and so on, it wouldn't work. It wouldn't work. You've got to build up. You've got to acquire the skills.

VOICE. He has to help his father.

VOICES IN CHORUS. He has to help his father.

VOICE. She has to help her father.

VOICES IN CHORUS. We have to help our father.

VOICE. They have to help their father.

VOICES IN CHORUS. They have to help their father.

NARRATOR. In developing countries, educational investments have been shown to earn high rates of return, substantially higher than the standard 10 percent rate of return, and the highest rates of return occur in primary education in the poorest countries.

For example, the return on investments in primary education in the lowest income countries is 27 percent. Investments in secondary education yield a 17-percent return, while postsecondary education shows a 12-percent return. And the rate of return on educational investments in all developing countries is higher than that for industrialized countries.

Data show that even a modest investment to improve the resources of the world's poorest schools can make a sizable difference in terms of student achievement.

For example, in 1977, only one-half the students in the Philippines were achieving at grade level. At that time, there was only one textbook for every 10 students. However, a national investment in textbooks has reduced that ratio. Now, two students share each textbook, and the result is that 70 percent of the students are now achieving at grade level.

This jump in student achievement increased the national education budget by a mere 1 percent.

Education has also been linked to increases in agricultural productivity. In fact, rice farmers with only 3 years of primary education have been shown to increase their yields by 6 percent per year, compared to farmers without a primary education.

Again, economist Theodore Shultz.

Mr. SHULTZ. The evidence in this respect is so much more convincing than one ever gets in almost any part of economics, because so many studies all over the world in agriculture, showing how much more efficient in an economic sense farm people become in a rapidly changing situation in modernization of agriculture, depending on their schooling.

The Bangladesh Ambassador to the United States, Obuidullah Khan, says that education is a key investment, and that the world's poorest nations cannot afford to ignore it.

VOICE. Unfortunately, most of the people in the Ministries of Finance or Planning consider education as a consumer expenditure. I would suggest very strongly that education is as much a production expenditure as expenditures for grain production or industry or anything else.

NARRATOR. A population with basic literacy is better able to perform in all aspects of the economy and in the society at large. The education of women in particular is linked to benefits, such as better family nutrition and lower infant mortality.

Yet, despite these high economic returns, it is increasingly difficult for developing countries to find the capital to invest in education. While industrialized countries spend an average of 7 percent of their gross national product on education, developing countries spend an average of 4.5 percent. This is how a rural Brazilian teacher describes her classroom.

TEACHER. My school is very poor. I have been teaching for 5 years. And we don't have anything there. We don't have notebooks. We don't have anything. I would like a room with a blackboard, with seats and tables. Last year I taught at my father's house. But with the rain last year, the house fell down. Now there is no place to teach. And when the students come, they mix with my family.

NARRATOR. In fact, data show an ever-widening gap in educational spending between the world's richest and poorest nations.

In 1960, the richest nations spent an average of $14 per pupil, in contrast to the poorest ones which were able to spend only $1 per pupil. But by 1970, the gap had grown. Then the ratio was $22 to $1. Now, in the 1980's, the richest nations are spending upward of $50 for every one education dollar spent in the poorest nations.

What was once a gap has become a gulf.

Student enrollments in developing countries are rapidly increasing, and this means that in the developing world there are fewer educational resources to go around each year. At the same time, there are more resources for students in industrialized countries.

And so a low-income country such as Bolivia is able to spend only 80 cents per student on nonsalary materials, while a middle-income country such as Malasia is able to spend $50 per student. And it's not unusual for an industrialized country such as Sweden to spend $300 per year on each of its students.

Because schools in developing countries lack basic teaching tools, it's difficult for those schools to be as effective as they can be.

Furthermore, students going to schools in these countries are not often given the opportunity to learn the complex skills required for tomorrow's economies.

VOICE. The future productivity of the economy is not fore-ordained by space, energy, or cropland. It will be determined by the abilities of human beings.

NARRATOR. Shultz and other experts temper this assessment with a note of caution. Although education is an investment with a proven high rate of return, they say it is not an investment with a quick return. Countries that make the decision to invest in education are embarking on a long-term investment, the results of which may not be apparent for years.

Yet, countries that do make that investment are building an infrastructure that will last for generations.

[Children singing.]

Mr. HALL. I have a letter here from William Stanton, Bill Stanton, who is the counselor to the president of the World Bank. And we also have a glossy pamphlet, pretty much outlining what that slide presentation just showed, and I would like for it to be part of the record.

[The material referred to above appears at the conclusion of the hearing.]

Mr. HALL. We are fortunate to have three expert witnesses with us today, and I'd like for the three witnesses to come to the front table.

The first one is Dennis Brennan. Mr. Brennan is a Deputy Assistant Administrator for the Science and Technology Bureau at the Agency for International Development. This bureau is responsible for research on the effectiveness and efficiency of educational systems. He will present testimony on A.I.D's involvement in improving basic education systems in A.I.D.-assisted countries.

The next witness is Ruth Zagorin; Ruth was formerly the Director of the Office for Human Resources at the Agency for International Development. She will present an historical perspective on literacy and basic education efforts and A.I.D.'s involvement in supporting these efforts.

And then Douglas Windham. Dr. Windham is Professor of Education and Professor of Economics at the State University of New York in Albany. He is director of the Improving the Efficiency of Educational Systems Project at the University. His testimony will reflect current research in basic education in developing countries and present evidence of the effectiveness of educational activities.

We'll just go through the three statements and then we'll ask some questions.

Mr. Brennan.

STATEMENT OF DENNIS BRENNAN, DEPUTY ASSISTANT ADMINISTRATOR FOR TECHNICAL COOPERATION, BUREAU FOR SCIENCE AND TECHNOLOGY, AGENCY FOR INTERNATIONAL DEVELOPMENT [A.I.D.]

Mr. BRENNAN. With your permission, I have a written statement, which I would like to submit for the record, and then if I may, I would like to amplify that, with a few remarks.

As we just saw in the video, we are focusing today on a very serious problem, a problem that developing countries face, in maintaining effective education systems.

But as we do that, I think it's important also that we recognize indeed how much progress has been made over the last 25 or 30 years. And this is illustrated most dramatically in student enrollment.

The video referred to a figure of 1 billion children going to school every morning. That figure includes China. But in 1960, not including China, there were 327 million students; by 1980 there were 641 million students going to school.

Most of that increase has occurred in developing countries. Student enrollments in developing countries went from 146 million in 1960 to 410 million in 1980. This is not just a reflection of population growth. It is really a reflection of the commitment, interest, and dedication of governments and communities, and people, to the importance of education. In Nepal, for example, in 1950 there were only 9,000 children in primary schools in the country. There are now more than 9,000 schools and nearly 1 million children in primary schools. This has happened over the last few decades and is a direct reflection of the kind of commitment and interest and the importance that people, ordinary people in developing countries, have given to education at all levels, but particularly for children.

It's true, as the video pointed out, that these kinds of figures, as encouraging as they sound, also tend to mask the significant problems of children repeating grades, the deteriorating quality of teaching, and the lack of facilities. But they are, nonetheless, valid indicators I think of tremendous accomplishment across all the developing world—Africa, Asia, and Latin America—in terms of what countries have done, often by themselves, for their own children.

A.I.D., the U.S. Government, has been involved in this from the beginning, from the 1950's, at all levels. For example, by the mid-1950's, we were working with or supporting some 84 institutes of higher education in developing countries. That's one end of the spectrum.

At the same time, we were working with primary education programs in most countries of Asia and Latin America, and subsequently in Africa.

For example, we were instrumental in bringing about fundamental education reforms at the primary level in Northeast Brazil and El Salvador. We worked with primary education and primary teacher training in Nigeria, Kenya, and Jordan.

We worked with the Korean Education Development Institute which had much to do with the dramatic improvement in that country's primary education system.

School feeding under Public Law 480, title II, has been a very important continuing part of the way that the United States has been able to reinforce the ability of kids to go to school. One square meal a day in Indonesia, Colombia, the Dominican Republic, Ghana, the Philippines, Sri Lanka, elsewhere, has often made a difference in whether children go to school or not.

As the video pointed out, there are serious problems. And the quantitative gains that have been registered over the last 30 years are really at risk. The squeeze on education budgets is real, and is becoming tighter.

A.I.D. assistance has changed also as the situation has changed. Our programs now emphasize the improvement of education management, planning, and allocation of resources, and the use of more cost-effective technologies. The whole purpose of this assistance is to help countries identify the constraints, the bottlenecks and the inefficiencies in their education systems and to work with them in policy reforms to improve those education systems.

The idea is to help countries spend their scarce educational resources more efficiently.

The basic job of getting children into schools has been done largely by the countries themselves. The issue now is the quality of that education. As we saw on the video, changes in the education systems are needed to ensure that when children go to school for 4 hours a day, they come out after 4 years with something more than just rote memorization of repeated words.

At the present time the section 105 development assistance fund for education and human resources supports 10 bilateral projects: in Cameroon, Swaziland, Lesotho, Nepal, Yemen, El Salvador, Guatemala, Honduras, Haiti, and Jamaica.

In addition, we have a major economic support fund program for basic education in Egypt as well as substantial programs in Botswana and Liberia.

Last fiscal year——

Mr. **Hall**. Could you bring that mike a little bit closer to you?

Mr. **Brennan**. In the last fiscal year, of the $173 million section 105 account, A.I.D. spent approximately 25 percent or $44.5 million on basic education. Of the $115 million in ESF funds spend on education, about 25 percent of that or $24 million was also spent on basic education. In addition, somewhere between $8 and $10 million in local currency has been devoted to educational activities in the last year. This level of funding, which totals about $78 million, makes A.I.D. one of the major donors in basic education in the world.

Recently the Administrator, Mr. Peter McPherson, took several actions to reinforce the Agency's commitment to basic education. First, and importantly, he directed that participant training, which is a major priority for the Agency, be funded across all sector accounts rather than just from the section 105 education and human resources account.

In fiscal year 1986, for example, the participant training program expended about $200 million and about $85 million of that came from the section 105 account.

We realize a lot of that could be funded from agriculture and from population or from other accounts, depending on the basic purposes of the participant training. And so the Administrator has directed all missions as they submit their fiscal year 1989 budgets to tie the funding as closely as possible to the substantive purpose of the training, so that the section 105 account is available for education, general education, and basic education, to the greatest extent possible.

The Administrator has also asked the Africa Bureau to develop an action plan to lead toward greater involvement in basic education in Africa. He has also authorized the hiring of an additional 14 educational officers to work with local governments overseas. The Administrator has in addition reiterated the need to improve our coordination with other donors, particularly the World Bank, and with UNICEF, in maximizing our efforts in basic education.

All these actions underline A.I.D.'s continuing commitment to assisting developing countries make the best use of what is the most important resource they have, their own children.

Mr. Chairman, thank you.

Mr. Hall. Thank you, Mr. Brennan. Ms. Zagorin.

[The prepared statement of Mr. Brennan appears at the conclusion of the hearing, see p. 73.]

STATEMENT OF RUTH K. ZAGORIN, FORMER DIRECTOR, OFFICE FOR HUMAN RESOURCES, AGENCY FOR INTERNATIONAL DEVELOPMENT [A.I.D.]

Ms. Zagorin. Thank you. I am delighted to hear of the progress that the Agency has made in the few months since I have been away from it. I think it will make some major contributions to the support of education in developing countries.

I hope my observations today will not be less credible, because I am going to acknowledge that I am not part of the education community in the ordinary sense, I am not an educator. But I have been concerned with the role of education in development going way back to the Marshall Plan days, when I first became concerned about the role of education, and its relationship to development objectives.

My main focus in working in development has been in the sectors, in improving agricultural productivity through the use of new technologies, in concern of population policies, in employment, in microenterprise, which the committee has been concerned with, and in health and nutrition.

The slide presentation and the comments, your comments, Mr. Chairman, recognize fully the role that education does play in the development process, the critical need for the developing countries as well as for donors to concentrate on the development issues, a recognition obviously exists that there is a growing crisis in farming education both in Africa and in South Asia. It threatens, I think it's been recognized, or compromises, all other development efforts in the regions.

It's true that there have been increasing numbers of school children in school, as a result of the efforts that have been made by the countries themselves. But the numbers are still relatively limited. All who are demanding access to school places are not having the opportunity for education. They must. The committee in holding, in seeking these hearings, has made it perfectly clear that they recognize the importance of education and its relationship to the other important sectors.

If we want to encourage democratic systems and effectively assist economic and social development, then we must do all we can, it seems to me, to make sure that the majority of the primary school-age children in the year 2000 can write and read and do arithmetic, and therefore, increase the probability that they will in fact lead productive lives.

There were many statistics in the presentation. I will make just a few other comments.

There were 62 million primary and secondary school places in Africa in 1983. This figure would have to reach 110 million places by 2000 just to maintain participation rates that existed in 1983 which then were woefully low. For nine African countries there would have to be more than four times as many places provided by the year 2000 to have every child in school.

Is this an impossible goal, or is this a goal worth fighting for?

I think it's a goal worth fighting for. It's clear, as was indicated in the slide presentation, as Mr. Brennan indicated, and as I'm sure Mr. Windham is going to indicate, that the emphasis must be on increasing the efficiency of the systems of education, which is going to mean a reallocating of resources by the countries.

We cannot expect the countries to spend much more money than they are currently spending, at least for most of the developing countries. Their budgets are stretched about as far as they can be stretched. This means that whatever resources they devote to education must be used more efficiently.

These systems are now absorbing huge amounts of scarce resources and not succeeding in educating enough of their children to an adequate level.

One test of inefficiency is the repetition rates. In African countries, the average repetition rate is about 15 percent. If we could reduce this rate to 10 percent, we could use the resources that have been saved to educate 6 million students.

But if current inefficiencies persist over 50 million of 120 million new primary age children attending school in the next 15 years are likely to drop out after 2 years. They don't learn how to read and write. They can't sustain literacy after 2 years in education systems.

Two years in education for those 50 million children will cost $8 billion. This is $8 billion Africa can hardly afford to waste.

How can we help Africa to make sure that $8 billion is not wasted?

A comment has already been made about the fact that this is not unique to Africa. The same kind of problem exists in South Asia where the population pressures are extreme.

What does this lead us to? What can we do? I believe that the proper use of U.S. foreign assistance to education is not in the construction of schools, nor in the provision of desks and equipment.

There is abundant evidence, I think, around the world that local communities, in collaboration with central governments, can provide educational settings for their children. There are ample examples where parents have come together in small villages and built the schools, and will build the furniture and do other things that are necessary to provide some kind of setting for their children, if they are encouraged.

I believe that the U.S. aid program, on the basis of my experience with it, has the expertise and further, has the responsibility, to greatly improve the utilization of existing resources in Third World countries, and in the process, to improve the effectiveness of the education which the children receive.

I believe that in recent years at least A.I.D.'s response to the need in education has been limited at best. Mr. Brennan mentioned the countries in which A.I.D. has been working. I think A.I.D. could do very much more.

Based on my previous experience in A.I.D., I'd just like to call the committee's attention to the fact that, despite some skepticism and some opposition within the Agency, in recent years, a centrally funded initiative, there was a centrally funded initiative which came out of the Science and Technology Bureau, looking to improving specific, to improving the efficiency of education systems in the developing countries.

This was based on recognition that the countries could not spend a great deal more, that the only way we're going to improve quality and improve access is by improving the efficiency of the systems.

The characteristics of the projects would be of interest to the committee. I think it requires a long-term commitment, in this case a 10-year committment, and that assistance not be of the traditional A.I.D. project variety.

One of the characteristics and one of the components of the project was to undertake a very careful assessment of the whole human resources sector in the country and this gave to the countries information and an opportunity to make some decisions based on information, which they never had the opportunity to do before.

We have evidence, after 3 or 4 years, of the projects running, that the project has had significant impact on policies in the developing countries.

In Somalia, following such an assessment, there was a reorganization of the civil service system, which donors had been recommending for many, many years. Other examples can be provided.

It takes a generation to accomplish reasonable goals in education. In Africa, if we had started 15 years ago, we would face a very different situation in Africa today. If we don't start now, 20 years from now, I suggest, another committee will be sitting around in this room raising the same questions we are raising today.

I believe that action must be taken now. In concert with cooperating countries and other donors, including the World Bank, to make the investment in human capital that Professor Shultz was talking about that is the seat of all development.

What can we do? Although developing countries' budgets are limited, they now spend over $65 billion annually on education. The donors spend over $2 billion, really very small by comparison. Therefore, the role we play must be very specific and very carefully perceived.

The LDC's have a responsibility. They really must re-examine the very heavy subsidy to higher education, find ways to reallocate more resources to primary education, and be willing to adopt the new policies that will result in a greatly strengthened and more efficient primary education system.

As was pointed out in the World Bank presentation, the rate of return to primary education is significantly higher than it is to any other part of the educational system.

I see two phases of action, for our foreign aid program. I think A.I.D. can mount an effort with the concerned countries to identify the critical constraints in human resources and second, in consultation with other donors, develop the comprehensive, long-term, and I emphasize again long-term, responses, for improving primary education efficiency.

Congress has to be interested in the cost of these things. Let me venture to suggest what it might take to move forward in, to achieve some significant results, in education.

Two years and approximately $650,000 in startup costs, per country, would be ample for implementing the first phase of such a project. The sector assessment, the analysis and planning for the human resource needs of a country.

And at the completion of this phase, it seems to me you go into the second phase, and it will take approximately $10 to $15 million per country, over a 5-year period, to produce greater efficiencies in the education systems. In concluding, I'd like to venture a guess or a promise. Where will these actions take us, what is the promise of results?

By reducing repetition and dropout, through better management of educational systems, and by improving the quality of the instruction that incurs in those schools, we can achieve a goal of 80 percent of the school-age children enrolled with 80 percent of these completing the primary school cycle.

We must begin this effort now. The children who comprise the primary school graduating class of the year 2000 will be born this year. Getting these children educated, providing them productive skills, so they can participate in the development of their country, is essential, if sustained social and economic growth is to occur in the developing countries.

There is no shortcut for alleviating hunger, malnutrition, poverty, and illiteracy.

I think we ought to remember, that locally managed education systems helped build this country. The experience we have had, we should be able to design a development assistance program which has its basic foundation, its foundation in basic education and human resources development.

This committee has been concerned with hunger and nutrition. But I'm sure it has occurred to the committee to ask the question, What will happen to these children if we provide food and we improve their nutrition, if in fact they never achieve basic literacy? Can they ever become productive members of their society? And this is the question and the problem that we face.

Thank you.

Mr. HALL. Thank you, Ms Zagorin.

[The prepared statement of Ms. Zagorin appears at the conclusion of the hearing, see p. 85.]

Mr. HALL. Mr. Windham.

STATEMENT OF DOUGLAS M. WINDHAM, PROFESSOR OF EDUCATION AND PROFESSOR OF PUBLIC POLICY, STATE UNIVERSITY OF NEW YORK AT ALBANY

Mr. WINDHAM. I have provided a written text, that I hope will be added to the record. And I would like to abstract from that just a brief comment on some of the most important policy issues I think the task force will face in relation to the issue of basic education, if I may, Mr. Chairman.

The other testimony presented here today has summarized very effectively the contribution basic education has been shown to make in promoting national development in general and to alleviation of personal problems, of hunger, and of health related to inadequate nutrition.

Drawing on my field experiences over the last 15 years in developing nations, I'd like to concentrate my own comments on three topics. The first is the appropriate definition of basic education. Second, the constraints in improving these basic education systems in the developing world. And third, the reason why efficiency enhancement should be the focus of any donor-supported policy toward education in the developing world.

The definition of basic education is not just a semantic issue. It has substantial political, social and economic ramifications.

The most common definitions of basic education restrict the focus to either the primary cycle of education, varying generally from 5 to 8 years of schooling, depending upon the nation, or to formal and nonformal programs that produce a minimum retainable level of literacy and numeracy.

A more useful definition for the specification of donor and host country investments in education would be the definition of a basic education system. This system would be defined in terms of the nation's available physical and human resources, but would concentrate on three forms of derived educational demand.

First is educational demand derived from the requirement to staff the emerging private, public, and parastatal enterprises that may be classified legitimately as immediately productive—in the jargon of the donor community. And I would include agriculture and health training as being explicitly subsumed within this categorization.

Second is the education demand derived from the social desire to maximize equitable access and achievement in the programs designed to provide literacy and numeracy.

And third, educational demand, such as that for facilities, teachers, or instructional materials which is derived from the need to manage and staff the expansion of participation in the literacy and numeracy programs as well as in the other training and educational programs related to the productive sector.

The advantage of this broader, more systemic definition of what is basic in education is that it emphasizes the multiplicative effect of any policy decision to expand a particular part of the education system. Under this definition of a basic education system, a government facing scarce resources must decide how to allocate resources between the demands for economic development and the demand of its people for greater access to and continuance in schooling. Whatever the decision, the implications involve demand for teachers, demand for instructional materials, and demand for facilities.

Without due attention to these secondary and tertiary implications, nations will continue to face the harsh and cynical questions as to what is the optimum form of education to prepare a school graduate for unemployment and what is the social or individual value of increased access to a worthless educational system.

In the paper that I presented, I list ten of what I saw as constraints on the improvement in educational systems. These include political and cultural constraints, manpower, instructional materials, facilities, incentives, attitudinal, management capacity, infrastructure, donor assistance activities, and financial constraints.

The discussion of financial constraints was left to last in part because they're the most obvious constraints. However, it is more important that it be understood by a task force such as this that alleviation of the financial constraints will do little to improve the educational systems of the countries we're interested in, unless the other aforementioned constraints are dealt with as well.

The solution to educational problems is not likely to come, nor should it come, simply from more funds being made available. The solution must be found in the more efficient use of the resources already being expended on educational systems.

When efficiency in the use of resources is achieved, it will become easier to justify greater resource requests for education, and the funds allocated will be assured of having a greater effect on school and school system outcomes.

For the last two decades, much of the new expenditures have been used to remove or disguise the effect of school system inefficiency. In the next two decades, efficiency enhancement should become a prerequisite for new allocations of funds.

Since the major expansion of educational systems in developing countries began in the late 1940's and early 1950's, the means of financing large scale increases in enrollments have involved new levels and sources of funding. Unless we take immediate steps, the next two decades will see new access financed through an inherent acceptance of poor quality of instruction and continued inequity in the access to education.

The brief review of the issues of basic educational development that are presented in the paper and in the discussions this morning can hardly provide conclusive recommendations on the scale and nature of the appropriate remedial steps However, three issues should be clear.

First, donor activity in basic education must be coordinated both within and among the donor agencies so as not to fragment and waste host country resources.

Second, donor activities should be designed to have a maximum leveraging effect through increasing the efficiency of systemic management and policy activity, as well as the efficiency of the direct delivery of instructional services at the individual classroom level.

Finally, donor activity in basic education systems must be long-term commitments that emphasize collaboration with host country officials at a variety of administrative levels.

There is no quick or easy solution to these problems, but a continuing program of cooperation functioning within a system's context and with a focus on the efficient use of system resources offers a high probability that the basic education system will become a concomitant, perhaps even an accelerator, to economic development, and not a retardant to development as it is becoming in so many countries today.

Finally, in recognition of the task force's central interest in the issue of world hunger, I would like to conclude by emphasizing that just as food and nutrition programs are required to keep a child alive, so improved basic education systems are required to give more children productive and useful lives. Properly designed, the development of a basic education system can begin to alleviate the need for externally funded food programs, as a generation of appropriately educated citizens moves toward self-sufficiency in agriculture and also toward true self-determination in terms of their political future.

Thank you, Mr. Chairman.

Mr. HALL. Thank you, Doctor, for your testimony.

[The prepared statement of Mr. Windham appears at the conclusion of the hearing, see p. 97.]

Mr. HALL. I thank you all for your expertise and your insight with the issue. I'm hopeful that something will come out of this hearing.

One question that comes to my mind is, let's say we can increase the attention on basic education, but the basic group of people that we want to influence, I think I've heard some of you say is women themselves in the world.

My travels in Africa, and my teaching experience in Thailand demonstrated that there are a lot of taboos, a lot of cultural difficulties in teaching women. And for a variety of reasons, women are the ones, in many of the Asian countries and in African countries, that really do the work.

When you talk about agriculture, when you talk about nutrition for children, when you factor in men's absences because of wars, you witness this phenomenon.

And yet women themselves, because of the culture are not educated. The money first goes to the men, the boys. Women are put in the background; they work at home.

How do you overcome the basic cultural problems of education for women and girls?

What experience have you had?

Mr. **Brennan**. I think the experience of Thailand with the number of girls in school is probably better than it is in many other countries in Southeast Asia and South Asia. But there's no question it's an extremely difficult problem and this is reflected in the illiteracy rates of women. There are different ways of trying to deal with it.

One is to emphasize the importance of some kind of pre-school involvement. If children, including girls, become involved in preschool, it tends to increase the likelihood that the family will send the girls onto primary school. Save the Children has a program in Nepal that has worked on that.

Second, there is no question teaching, the training of women as teachers has an important effect in encouraging families to allow girls to stay in school. In many countries, the majority of teachers are men, even in primary schools. That's changing. It's changed for example in Thailand and it's changing in South Asian countries. As that change continues, I think there is the likelihood that more girls will stay in school because the teachers are women and there is a relevance established which is not present when the primary school teachers are mostly men.

There is a program in Bangladesh run by another PVO that's trying to pay girls to go to school. And I don't know how well that's worked, but it's a novel idea, based on the principle that the only way you can get a girl out of the home is by giving her the independence and compensating her family for the loss of her labor. That's on a pilot basis and is being carried out in Bangladesh.

We recognize the problem and it's something that we try to deal with in each one of these primary education programs.

Mr. **Windham**. If I could comment, Mr. Chairman, on our experience in the Yemen Arab Republic where I think you have one of the lowest literacy rates among women in the world, and I think a classic model of the types of conservative traditions about which you were referring.

There are several activities in which A.I.D. and other donors are involved there to try and get around this problem. One technique which has a great opportunity for success is the provision of radio instruction in literacy and numeracy as a way of avoiding and sidestepping some of the cultural barriers to female participation in schools. However, one of the things that we found as a result of the type of work that Ruth Zagorin was talking about before, in doing a sector assessment in Yemen, was that in fact the female participation rates were higher than the government had thought they were and that in those areas where women had the opportunity to continue in school beyond just the first 2 or 3 years of schooling, the participation rates of women and retention rates of women were equal to that of men and this included many of the rural villages. The problem was, many parents did not want to send their children to school if all that was available was just the first 2 years or 3 years of schooling. They understood, I think better than some of the foreign experts perhaps, that what they really needed was education to at least the basic literacy, numeracy level, and ideally an opportunity for further education for women.

This is a long-term transitional problem, obviously. But I do think that there are specific strategies such as radio education. But I also think that the donor community, all of the donors, not just my A.I.D. friends here, I think need to be more optimistic about what we can do about women's education in these countries. Do not assume that the cultural barriers are as severe. I think they vary dramatically from country to country, but I also think within every country there are going to be perhaps a hard core of families which will not release the women for education, but that this is a much smaller number than some of our policy documents seem to suggest.

Mr. HALL. OK. This is my colleague, Mr. Gilman. He's going to ask a question. I'm going to go vote and I'll be back in about 10 minutes.

Mr. GILMAN. I want to commend our chairman, the gentleman from Ohio, for bringing on this important hearing and giving us an opportunity to dig into this aspect of foreign assistance.

Besides emergency food aid, probably there's no more effective way to end hunger and disease in the developing world than providing the kind of basic education we'd like to see out there.

I'd like to ask Mr. Brennan if he could tell us how much we are spending in education in our A.I.D. program.

Mr. BRENNAN. The section 105 education and human resources account alone, in fiscal year 1985 for example, was $186.5 million of which $52 million, roughly 27 percent, was applied to elementary and secondary education.

In fiscal year 1986, the total was $173.5 million. There was $44.5 million or 25 percent, spent on elementary, secondary and adult education.

In fiscal year 1987, the amount was reduced to $151 million. And 20 percent, or $30 million, was being applied to elementary, secondary, and adult education.

Mr. GILMAN. And what are we now recommending for fiscal year 1988?

Mr. BRENNAN. The request for fiscal year 1988 was $38 million, out of a total of $189 million. This figure includes an estimate of the education and human resources activities included in the development fund for Africa.

Mr. GILMAN. So we're really moving downhill pretty rapidly, aren't we?

What would the panelists, if you had the opportunity to have your most important recommendation implemented, what would you say would be the best recommendation we could do to enhance education through A.I.D.?

Mr. BRENNAN. Well, I think we've got a number of things, Congressman. One of them is the Administrator's decision to direct missions, to the extent possible, not to use the section 105 account for participant training in agriculture, health, population, or other fields, but to use those accounts for those purposes, releasing section 105 for general education, including basic education. That is certainly going to result in freeing up some of that money.

Mr. GILMAN. How much will it free up?

Mr. BRENNAN. Well, our estimate in fiscal year 1986 was $80 million of the participant training program came from the section 105 account. Even if it frees up half of that, that would be $40 million, or one-third of it——

Mr. **Gilman**. Is that a practical, viable solution; is it one that can be undertaken, without a lot of regulatory changes?

Mr. **Brennan**. It doesn't require any regulatory changes at all. It just needs the attention of people in the field to look to the kind of training that they're proposing and direct the funding to the accounts that the training relates to and not just use the general section 105 education funds.

Mr. **Windham**. I think one of the major issues in the level of funding, sir, is the form in which the funding is reaching the field. I think that many of the activities which take place under bilateral A.I.D. projects probably are having less effect in terms of making the types of changes in basic education literacy and the effects on agriculture and other—I think that the way is through the model that Ms. Zagorin mentioned and that is through taking greater advantage of the multinational funding mode so that we can be sure that we are having a greater leveraging effect on the money that the countries themselves are using.

Ms. **Zagorin**. Just a comment that I don't think you can achieve what the committee would like to achieve or that we on this side of the table would like to achieve through the conventional A.I.D. project mode. It just, education doesn't lend itself to the 3 to 5 year project. It has to be a long-term commitment and starting through some of the very basic analysis to bring about the results that we want.

Mr. **Gilman**. Thank you very much, and please forgive us, and I'm sure that our chairman will be returning momentarily. The hearing stands in recess.

[Recess.]

Ms. **Zagorin**. To come back to your question about female education, I think there are several things about that that might be interesting.

One way of assuring that girls are going to have access to schooling is to expand access. That as long as families are faced with the choice to educate, or societies are faced with the choice to educate boys or girls, in many societies the choice is going to be boys, if the spaces are limited.

If you expand the spaces, I think ways can be found to accommodate girls.

I think that Mr. Windham's observations are correct, that despite the fact that the cultural constraints are significant, ways can be found around them.

In Pakistan, in recent years, where there has been a recognition that they must do something about education for girls, and noting the problems, and because they don't have enough female teachers, as Mr. Brennan suggested, they have begun to educate girls in the Koranic schools, up to the fourth grade. And this is acceptable to parents. They will put their girls into the Koranic schools, because they feel they are protected.

In another experiment, there was, after some discovery, it was learned that the parents are reluctant to send their girls to school if they're not properly dressed. The boys can go ragtag, and they're not concerned. But it's not appropriate for girls to be in that condition. And therefore, if opportunities were given to parents to provide uniforms or proper clothing for girls, this would be a way to get the girls into school.

There are many techniques which can be investigated that can be looked at, to assure that in fact girls do have access to education.

Mr. HALL. Thank you. I understand Mr. Gilman had asked a question that I was most interested in as well. This question would probably be for Mr. Brennan.

The percentage of money for basic education, apparently is going down. Why is that?

Mr. BRENNAN. I think there are probably several reasons for that. One, as was discussed this morning, is that the accomplishment in basic education over the last 25 years in most developing countries has been simply extraordinary. Millions, hundreds of millions of children have gotten into school in countries that would never have had these kids in school before.

And every donor, every agency, including A.I.D. and the World Bank and others, have been involved in those programs for 20 years or more. This has been at every different stage, from building schools, providing textbooks, working on textbook improvement, and printing establishments to teacher training.

As those numbers have gone up, the budgets of these governments have remained fairly high in their commitment to education. I think 24 to 27 percent is the average of government resources in countries in Africa used for education. It is 21.5 percent, for example, in Thailand, even now, for education.

It has increasingly become recognized that those are problems that really have to be dealt with by the communities and by the countries themselves. They're almost entirely local currency. The job of building schools, desks, land, virtually everything, even teacher training, is something that has to be done right there.

For example, in Egypt right now we have a program of $190 million dollars in which school construction is the major part. That's because it's that kind of program. We have the resources to do that, to work on school construction. But we don't have that generally throughout the world. And it isn't necessary. School construction is done locally, as Ms. Zagorin and Dr. Windham pointed out. Teacher training is done locally. So that the resources that we have, that donors have, that can be used effectively for this growing need, are for improvements in the efficiency of education, better planning, and better allocation of resources. It means technical assistance to help countries address their education problems, including better use of technology, more involvement of communities. That means fewer dollars that A.I.D. and other donors should be providing directly to basic educational support in these countries.

And I think that's the principal reason.

Mr. HALL. Let me follow up with a question on that. It's my understanding that the lowest adult literacy rates and lowest primary school enrollment ratios in the world are in six South Asian countries.

And at the same time, A.I.D.'s education budget for that region is almost zero. And how do you explain this apparent contradiction?

Mr. **Brennan**. I was most recently the A.I.D. Director in Nepal. I think the effective A.I.D. cooperation with Nepalese education goes back for more than 25 years and has played a very large role in increasing the number of children in school from somewhere around 9,000 to close to 1 million in primary schools, plus secondary schools and universities.

Education is a very important program for the Nepalese government and for virtually every donor working in Nepal, and continues to be. So I'm not sure where the contradiction is there, Mr. Chairman.

Sri Lanka, for example, has one of the highest literacy rates in Asia. And a well established reputation for the quality and the coverage of its schools.

In India and Bangladesh, I think the issue is largely determined by numbers. There are just so many people. It's difficult to reach them and the retention rates are poor. The number of women who either don't go to school or don't stay in school is extremely high.

Mr. **Hall**. I guess what I don't understand is that while the percentage of money for basic education in A.I.D. has gone down 30 to 20 percent on an average in the world, in Asia, it's gone down to less than 2 percent. And I'm still not hearing you. Maybe you said it and I missed it. Why is that happenning, in apparently six of the countries that need it the most?

Mr. **Brennan**. In the case of Nepal, for example, Mr. Chairman, the program continues as it has in the past, with radio-assisted education and radio-assisted teacher training. That's an important part of the A.I.D. program in Nepal and continues to be.

So there has been no change there in the bilateral program, and indeed it has the support of the centrally funded education program.

I think we're really talking about Bangladesh, India, and Pakistan, and in the case of Pakistan, I know there's consideration now about a possible basic education program there.

The answer in part is the recognition that the responsibility for working with and improving local schools and for lifting literacy rates is at the local level. Our contribution in terms of technology or assistance in improving the efficiency of education, is something that happens at a different level. The large illiteracy rates in India and Bangladesh are something that have to be dealt with by the basic education systems in those countries. Our effect on that, unless we were to get into it with bricks and mortar, which would be a diversion and not the best use of resources, probably doesn't make sense in that enormous setting.

Mr. **Hall**. Ms. Zagorin.

Ms. **Zagorin**. Being a private citizen, and now out of A.I.D., I can say some of the things that I wouldn't dare have said while I was in the Agency.

Mr. **Brennan**. She did say them. [Laughter.]

Ms. **Zagorin**. But not publicly.

The—I think the same thing, the argument that Mr. Brennan is making about the way A.I.D. invests its money, I think the same arguments could be made about agriculture or about health or about population. These are responsibilities of the countries, not responsibilities of the donors. But we have chosen to make large investments in population or in agriculture or in health. And therefore, I don't think that that argument stands up very well.

If we acknowledge that education is critical, and is critical to the whole development process, then A.I.D. has to figure out as well as the other donor agencies, how can we help the countries.

We can't help them by giving them increased resources. We don't have them. We can't help them by expecting them to use increased resources because they don't have it. So we come back to where I think I started some years back, even long before I came in to A.I.D., is to say that we have to look, the way we have to assist the countries in education if we acknowledge that education is critical, is to assist them to use what resources they have efficiently. If we can do that by using technologies, by using radio, other kinds of technologies, teaching techniques, management techniques, by helping them to assist their human resource systems, I think we can make immense progress.

If we selected the 15 as I suggested or 10 or 20 poorest countries where the problems are most critical, what would it cost A.I.D. in fact?

We have estimated in the past, and I use the estimate, I may be off by some magnitude, but if you talk about $10 million per country, over 5 to 7 years, that's $2 million a year. That's not very much money.

And I think we have evidence that we can achieve really quite fabulous results by leveraging this small amount of money, by helping the countries.

Either we have an obligation to help them, or we don't. Let's just bow out say, yes, there's nothing much that we can do.

I believe that Mr. Windham can address the question by pointing out some examples of how much can be accomplished with relatively limited resources.

Can I put you on the spot?

Mr. WINDHAM. Well, let me deal with the general question first.

I think that we are just now emerging from a period when, to be sophisticated in donor assistance was to be skeptical about educational activities, and whether they were appropriate realms for us to make investments in. And I think some of the figures that we see in specific countries you're discussing and in the more general comments that Dennis has made, reflect that people within the Agency as well as in the general donor community began to lose faith that we could do anything in education. And I think there was the misplacement of the triage metaphor, that these countries such as Bangladesh, where I have worked, were places where you could not do anything. I think what we have done is made our job much more difficult without ever removing the responsibility for embarking upon solving some of these problems. There have been, through the activities which, in World Bank activities as well as A.I.D. activities and UNDP activities that I've been involved in over the last 10 years, an attempt to make a successful effort without having dramatic increases in the percentage of budgets that are going out of the donor community to these particular countries, and the main effects have been at the two polar extremes of the educational system. One concentrating on the central management structure of the system where basically what we're trying to do is promote ways to make sure that the money being invested by the country itself is going to be utilized properly with basic management techniques being introduced. And, at the other end of the educational system at the classroom level, by trying to provide minimum assistance to the teacher. Many of the teachers in these countries who are dedicated, who are showing up at the schools, simply do not have the basic information about what one does once one arrives and the students arrive. And the most effective investment I think that the international donor community has made in the last 10 years has been in the things which go under the general rubric of programmed teaching. These are basic materials to tell the teacher the sequence of instruction, the type of expectations for student responses, and so on, and these activities I think have been extraordinarily successful. They have been documented as a subcategory within which we have the radio education activities which have been successful on an experimental level and which we still have to look at in terms of whether national dissemination can be achieved.

But we do have things that we can do. I think the general question is convincing people that something must be done in education. We accept the fact that it's not the traditional large bilateral project; perhaps that is not the solution in every case. I use the term in response to one of Mr. Gilman's questions about multinational activities. I did not mean multinational donors such as the World Bank or UNDP in every case. A.I.D. itself doing the same project in more than one nation at a time creates a tremendous amount of informational flow among the countries greatly expanding the investment return that we get from that money. So there are things that we can do. I think we have to be aware of the inbred cynicism among certain groups within the donor community.

Mr. HALL. Mr. Bereuter.

Mr. BEREUTER. Mr. Chairman, I very much appreciate the testimony we've heard. And Professor Windham, I apologize for not being here for your presentation, but I've read the material you presented.

Mr. Brennan, the first thing I would like to mention to you is to make the request that the statistics you used about school attendance and expenditure levels were not I think in your written presentation. If I could have those, I'd appreciate it very much.

You had some statistics for example on school attendance, and I wasn't quite sure, we're talking about developing countries of course, whether you were talking about an absolute increase in the percentage or only in numerical percentage.

Mr. BRENNAN. I think the figures I used—a figure of 1 billion going to school every day included China. And all levels.

Mr. BEREUTER. Do we have a higher percentage of children in the world going to school or a lower percentage?

Mr. BRENNAN. Higher. The number of students worldwide, rose from 327 million——

Mr. **Bereuter**. All three of you have made direct or indirect remarks about a deteriorating quality of teaching or deteriorating quality of teachers, which are two different things.

And do you believe that in the developing countries, taken as a group, the quality of teaching is deteriorating?

I'd like to have remarks from all of you. I'd like to understand where we are, as a benchmark.

Mr. **Brennan**. Since I have the mike, I'll respond first.

We're talking about two things. Most of the deterioration in the quality of education including access to education, has to do with rural areas.

The situation in urban centers, cities, and large towns is quite different, in Asia as well as elsewhere. But in rural areas, the quality of teaching has deteriorated. Simply to keep up with the demand for the numbers of trained teachers has proved impossible.

Mr. **Bereuter**. Do we have as many quality teachers as we ever did, but there are simply more schools to be taken care of and children and therefore——

Mr. **Brennan**. Yes. We have more teachers numerically than there ever were, more trained teachers.

Mr. **Bereuter**. Traditional teachers taken as a group are causing a deterioration in the quality of teaching because they're not as well trained as the cadre was that was out there conducting the educational activities?

Mr. **Brennan**. Because there are more teachers without training, more teachers who have completed only the 8th grade, 9th grade, or 10th grade with no teacher training at all. That demand is there because the numbers of children have gone up and the numbers of schools have gone up.

Also there is the question of the facilities, the books and equipment in schools, because the numbers required again aren't available.

Mr. **Bereuter**. May I solicit the comments of the other witnesses?

Mr. **Brennan**. However, as a percentage of the total teaching force, those teachers that we would consider qualified to go into the classroom and conduct instruction are a smaller percentage than they were before.

I think a more disturbing issue is that the good teachers are probably more concentrated in urban classrooms, and are more likely to have contact with predominantly male classes than was the case in some of the countries in which we were working 10 years ago.

So, both the percentage and the concentration of teachers in urban areas are problems. This relates to the point of incentives within the system for teaching outside of urban centers.

Ms. **Zagorin**. The explanation that you've been giving so far is absolutely correct, and you do have circumstances where in villages parents are so anxious to have opportunities for education for their children that they will build schools in the hope and expectation that the government somehow will provide teachers.

And when teachers aren't provided, they'll take the individual in the community that has the highest level of education, which may be no more than 5th or 6th grade, and will introduce them into the schools. So there are these reasons for the circumstance at the present time.

Mr. **Windham**. I would like to add, we are having an increasing problem with retaining the qualified teachers in the teaching profession in these countries, which is not unusual for developed countries, I might point out, but in these countries, especially as economic opportunities improve, it in fact becomes a more difficult situation to keep someone with a junior-secondary or secondary education in the classroom.

Mr. **Bereuter**. I was particularly interested, Mr. Brennan, in your remarks about the food being distributed at school, for lunch programs, being an attractive force to attract children to school and keep the children at school for a longer period of time.

I recall in the last year of Duvalier's regime in Haiti, over 65 percent of our total U.S. Government humanitarian education assistance was coming through the private voluntary organizations. That was certainly an effort on our part to bypass the government. But we could not satisfactorily find a way to deliver the school lunch programs without using the government and over one-half of the children in Haiti were receiving the only good meal they received in a day because of U.S. Government food assistance through the school programs.

I'm wondering to what extent we can now successfully enlarge our food assistance programs for school lunch purposes and the impact that would have internationally on the donor countries and where it might be most helpful within the world.

Mr. **Brennan**. Where we could successfully—your question—where we could successfully——

Mr. **Bereuter**. I wondered to what extent could we expand this food assistance program advantageously for the education of children?

Mr. **Brennan**. Well, there are present programs I think in Latin America, in Colombia and the Dominican Republic, and in Indonesia, Morocco, the Philippines, Sri Lanka, India, and Ghana.

I think it depends on the identification of the need and the opportunity. Our country missions have the opportunity, or the local autonomy, to work out with the national government title II programs with PVO's if that makes sense in that country.

What we were looking at over the past few years is the nutritional demand for these kinds of programs.

So, I can't say what the potential for expansion of title II school feeding programs is. But we can certainly check that and see what the scope could be.

[The information referred to above follows:]

Under Public Law 480, title II school feeding programs are currently being operated by U.S. PVO's in Morocco, the West Bank, Bolivia, Ecuador, Haiti, Honduras, Burkina Faso, Ghana, Madagascar, the Seychelles, Togo, India, Philippines, and Sri Lanka.

These programs serve over 7 million school children. Nearly 75,000 metric tons of title II food commodities were programmed for fiscal year 1987.

To expand school feeding programs other current title II programs, principally, maternal child feeding and food for work, would have to be correspondingly reduced. In the case of maternal child feeding, we consider the health and nutrition needs of mothers and infants to be greater than those of school age children. Similarly, on food for work, the income and nutrition improvement derived from family members working is greater than the benefit through school feeding. Consequently, both these programs have higher priority for title II resources than school feeding.

Mr. WINDHAM. If I could add something on that comment, sir, there's a very exciting program in which we're involved in Somalia where, in cooperation with A.I.D. and the British Council, UNICEF, and the government of Somalia, the food program is being used not just as an encouragement for the students but also for teachers to continue to come to the schools. And I think that the collaboration and the effectiveness of that program in the next 18 months, being combined with an instructional strategy for undertrained teachers, is an example of how food aid can be used to leverage other types of educational benefits, in addition to supplying the basic nutritional needs that are obviously required.

Countries such as Somalia in sub-Saharan Africa, Ethiopia, the Sudan, and others, are prime candidates for that type of leveraged food program.

Ms. ZAGORIN. Mr. Bereuter, I don't know whether you're aware of the work done by Mr. Schuh, Ed Schuh, an agricultural economist, strongly—now with the World Bank, with the Department of Agriculture and the University of Minnesota—strongly advocating as proposed using food aid specifically to assist in education. And I think the material that he has produced would be very interesting.

Mr. BEREUTER. Thank you for that suggestion. I have one final remark before I turn it over to my colleague.

I believe I understood the remarks of Professor Windham to suggest that we have much more we could accomplish by trying to leverage the donor community by sharing information that is now being generated by our successes or failures in one country, sharing it more broadly.

But I am about to be involved in a markup of the foreign assistance program, a spot on the Foreign Affairs Committee, and I would like to have in as straightforward a language as you can provide, each of you in turn, what changes can we make in our foreign assistance programs through A.I.D. or otherwise, that will have the greatest return in improving educational opportunities for children in developing countries.

I want your succinct response. Ms. Zagorin, for example, I thought you were quite critical of the donor program, but I didn't glean from your remarks how specifically you would change it. So I'm asking now from all three of you to be as specific as you can, because I've got about 2 weeks to consider and prepare these amendments at the max, so here's your chance.

Ms. ZAGORIN. I'd like to make a succinct statement now, but I'd also like to take the opportunity to perhaps provide something, a paragraph beyond the succinct sentence, at some time to you within the next 2 weeks.

Mr. BEREUTER. You're welcome to.

Ms. ZAGORIN. I've been critical to the extent that I don't think there's been a real commitment to work in education. For talking about A.I.D. as well as other donor agencies, there's a great deal of freedom left to the missions in the country to determine whether or not they will participate in a particular kind of activity. If you have an admission or if you have an assistant administrator in the agency who for whatever reason is skeptical about the value of education, you will not get the support that the A.I.D. mission directors need in the field to pursue education.

Mr. **Bereuter**. Remember, though, that I have an impact by statutory language. So I'm asking you to be very specific, what do I change?

Ms. **Zagorin**. I think I'd like to provide it in a written paragraph.

Mr. **Bereuter**. All right.

Mr. **Windham**. I think the Constitution protects academics from having to be succinct. But I will——

[Laughter.]

Mr. **Windham** [continuing]. Make an effort, in any case.

I think the two issues are commitment and flexibility. And I'm not sure they can be dealt with in statutory language. I think they have to do with attitudes of individuals and the delivery of aid in a process in which personalization—and I mean by personalization, individuals having controls to oppose arguments and evidence to the contrary—is the major problem that we face, and I would like to be able to provide you with a succinct, or nonsuccinct statement. But I really think it is that, it's a matter of commitment and flexibility. I think the regulations of A.I.D. would already allow us to do that, and I think the Administrator desires to do that. I think it's a matter of mobilizing some of the people below the level of the Administrator, to face these responsibilities.

Mr. **Bereuter**. Letting Congress off the hook, in other words.

Mr. **Windham**. Someone should once in a while. [Laughter.]

Ms. **Zagorin**. May I come back for a minute? I think perhaps the most important thing that Congress could do would be to make the, be perfectly clear in the language of the act, their interest and concern about the determination that the Agency vote resources and attention to education.

Mr. **Bereuter**. Mr. Brennan, do you want to make a suggestion within the government?

Mr. **Brennan**. I think, Mr. Bereuter, as Doug Windham has pointed out, the statute and regulations are more than adequate to permit the Agency to do the things that it needs to do with basic education.

I also agree with Doug that the basic commitment is there, the Administrator's commitment to this is certainly there. I would think if you were to consider language in markup or in committee that it recognize the Agency's commitment to basic education, to reduction of illiteracy, which are both set out in the Agency's strategic plan. That it recognize the Administrator's recent policy emphasis on the involvement of local communities and support of basic education. recognition of the importance of the comparative advantage which the United States has in efficiencies and technologies for education. That kind of language would help to reinforce a commitment which is already there, and a flexibility which I think we already enjoy.

Mr. **Hall**. Mr. Penny.

Mr. **Penny**. Thank you, Mr. Chairman.

I'm interested in the use of the Peace Corps in our education effort. My understanding is that we did a lot more of that in the early years of the Peace Corps program than we're doing today, and I'm wondering whether any of you have an opinion as to the appropriate roles for Peace Corps personnel in our education efforts in some of these developing countries, whether you think it should be utilized more extensively, and if not, what you think the drawback to Peace Corps volunteers in these education efforts might be. Any of you.

Mr. **BRENNAN**. Mr. Chairman, the Peace Corps involvement in education overseas has remained very high. I think there are several thousand Peace Corps volunteers involved directly in A.I.D. programs overseas, but in addition to that, for example, in countries such as Nepal and in Thailand, the major Peace Corps program is working directly with the country's educational system, putting teachers in schools. In many cases you find that in towns where there is a boys school and a girls school there will be a male Peace Corps volunteer in the boys school and a female Peace Corps volunteer in the girls school.

The Peace Corps involvement in education, basic education and secondary education, is widespread. It is mainly secondary education now, because that's the level in which you bring in a college graduate to work in a village or a small town. Teaching in a primary school is a waste of the resource in a sense. They usually teach in the secondary school, and teach English. Its fine Peace Corps program and something that we think is very important.

Mr. **PENNY**. Do you have the relative numbers of Peace Corps volunteers that are involved in educational as opposed to other development activities?

Mr. **BRENNAN**. No, I don't offhand, but I will provide the information for the record.

[The information on Peace Corps volunteers appears at the conclusion of the hearing.]

Mr. **PENNY**. I would like to see those. Somehow I had the impression that we had not provided as much support in the educational area in recent years as we used to.

Mr. **WINDHAM**. I think that's true, Mr. Penny. I think it has been declining and I think it's especially unfortunate because in my experience it is one of the most cost effective means we have for delivery of technical assistance as well as in many cases simple role models for teachers and administrators within schools, teacher training institutions and elsewhere. One underutilized role for people from the Peace Corps has been in some of the management activities that I've talked about as people who can work with central administrators in planning and other activities, and that is certainly an area where there's a dire need and there is a competency that the Peace Corps can call upon. But certainly over the last 15 years, there has been what I would call a dramatic decline away from education into the health and agriculture fields.

Mr. **PENNY**. Thank you, Mr. Chairman.

Mr. **HALL**. It used to be that the Peace Corps was about 75 percent educators. Teaching English as a foreign language was the major project. But then later they got involved in other specialist projects and the number of educators went down to about 25 or 30 percent.

Now I understand there is a real demand to again start teaching basic education.

Mr. BEREUTER. One question.

Mr. HALL. Go ahead.

Mr. BEREUTER. Do you think that if we were able to put volunteers into these national central education bureaucracies, they could have a significant impact in most countries or a few countries? How would we assess where we really ought to try to direct our first volunteers?

Mr. WINDHAM. I think the type of process that we have used in our improving efficiency project has been to engage the central ministry of education as well as the central ministries of planning and finance in an initial sector assessment to identify these issues of policy and thoughts. Only after that do we make a decision about the committment of any technical assistance into online activities, because you have to have a receptive setting for this type of advice or you simply are wasting the time of both the host government and the personnel you're putting in the field.

I think these types of things should follow that type of initial management capacity assesment, and not precede it. It's not an automatic solution and I think that it can be very successful in specific settings.

Mr. BRENNAN. May I add to that?

Mr. HALL. Yes.

Mr. BRENNAN. I think in part that also depends on the qualifications of Peace Corps volunteers. The reason that Peace Corps volunteers are often very successful in teaching in secondary schools is because that's what they're able to do. They've got a general B.A., they're out there and they're ready to live with people. They teach English, or whatever else they're asked to do.

When you ask someone to be an expert and to advise people in the central ministry of education, there has to be a different level of qualification. Peace Corps volunteers are not always experts and shouldn't be asked to do that kind of thing.

Mr. WINDHAM. But we have a mature group within the Peace Corps, and we have the availability of recruiting specifically people, either midcareer people or end of career people, who I think would be interested in these opportunities and could make a significant contribution.

Mr. Hall. Thank you very much for responding to our questions and thanks for your testimony. We have some other questions that we weren't able to get around to that I'd like to be able to send to you and have you answer. Thank you again, and that concludes our hearing.

[Whereupon, at 12:00 noon, the hearing was concluded.]

[Material submitted for inclusion in the record follows:]

PREPARED STATEMENT OF HON. TONY P. HALL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

Good morning, ladies and gentlemen. Welcome to the first hearing to be held by the International Task Force of the Select Committe on Hunger in the 100th Congress. We look forward to your statements this morning.

This task force is charged with investigating the causes and dimensions of world hunger, and developing legislative recommendations to address the issues raised. We have explored many issues relating to hunger, including basic health care, food assistance programs, micro-enterprise credit, and humanitarian assistance to Sub-Saharan Africa. Today we are looking at the issue of basic education as a crucial link in expanding opportunities for poor and hungry people to provide for themselves.

Lack of basic reading, writing and arithmetic skills prevent millions of people in the developing world from adequately entering the economic mainstream of their societies and gaining access to employment and services. In Africa, half of the school age population does not attain the basic literacy and numeracy needed for productive involvement in the development process. The situation is worse for rural populations than urban populations, and for women than for men. In south Asia, where illiteracy among men averages 41 percent, illiteracy among women is a shocking 69 percent of the total adult female population.

Common sense tells us that education is necessary to promote the social and economic development of people and nations. Yet worldwide, literacy rates are declining as education budgets face relentless pressures in debt-ridden countries, and funds for maintaining and improving school systems decline.

Today we have with us a representative of the Agency for International Development who can tell us what the U. S. government is doing to address the pressing need for improving educational systems in less developed countries. We also have with us two witnesses who are experts in the field of international education to explore some of the issues relating to the economics of educational assistance, and possibilities for improving education programs worldwide.

Before we hear from our witnesses, we have a slide presentation on the economics of education. While World Bank officials are not able to testify before Congress, they have graciously made available this valuable and informative visual presentation for our use.

But before we begin the slide presentation, do any of my colleagues wish to make a statement?

PREPARED STATEMENT OF HON. MICKEY LELAND, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Good morning. I am pleased to be at this meeting of the International Task Force of the Select Committee on Hunger. The Task Force chair, my distinguished colleague from Ohio, has convened a most informative group of witnesses to share information with us on a topic central to the international hunger problem.

I have recently returned from a trip to Ethiopia and Kenya, and have seen first-hand how important basic skills are for people seeking economic and social stability in their communities. Educated youths are much more likely to obtain economically productive employment, and educated adults are much more likely to meet such basic needs as health care, sanitation, and improved food production capability. Educated mothers are much more able to care for their children. Furthermore, it is clear that our scarce foreign aid resources can be used much more efficiently and effectively in literate populations, increasing the success of agriculture, population, environment, water and sanitation, and health programs.

Unfortunately, even though most developing countries spend between

20 and 30 percent of their national budgets on their educational systems, they are falling further and further behind in their ability to educate their children. In Uganda, for example, a country with high levels of malnourishment and hunger, there is only one schoolbook available for every twelve children. In 1970, there was one book for every three children. In Bolivia, the government spends only 80 cents per child every year for school materials. Here in the United States, we spend well over $200 per child per year for materials.

If we are to assist the people of these countries, it is imperative that improving basic education for their children and illiterate adults be a high priority. With education as a starting point, other programs to meet basic human needs have a much greater chance of success. In order to address hunger concerns worldwide, we must ensure that people have the tools to grow or purchase their own food, to adequately feed their children, and to establish an economic floor for their sustained self-sufficiency.

The World Bank
Washington, D.C. 20433
U.S.A.

J. WILLIAM STANTON
Counselor to the President

March 3, 1987

Congressman Tony Hall
Select Committee on Hunger
H2-507 Annex II
Washington, D.C. 20515

Attention: Mary Ruth Herbers

Dear Tony,

On Thursday, March 5, Mr. Steve Heyneman is scheduled to appear before the Select Committee on Hunger to present a report he was asked to prepare for a hearing.

Most regrettable, Mr. Heyneman, in agreeing to do this, did not realize that since he is a World Bank employee we have a policy of not appearing before formal meetings of legislative bodies of our stockholders. This policy applies to the President of the Bank as well.

The Bank is pleased that the Committee recognizes Mr. Heyneman's talents on subjects that they are interested in and wishes to cooperate in any way we can. I am enclosing a copy of his statement. In addition, I am sure he will be glad to meet with anyone your Committee suggests on an informal basis at any off-the-record format you suggest.

Best Regards,

Bill-

Enclosure

EDUCATION AND HUNGER
IN DEVELOPING COUNTRIES

S. Heyneman
Chief
Education and Training Design Division
Economic Development Institute of
The World Bank
Washington, D.C.
March 5, 1987

* The statements made here represent the personal views of the author and do not necessarily represent those of the World Bank or any of its affiliated institutions.

Mister Chairman, Members of the Committee:

I am honored to be able to speak to you today about the relationship between education, economic development, and hunger. The connection between these three topics in developing countries is an extremely important subject, one I care about deeply. I must emphasize that I am not an expert on nutrition. But I am familiar with research--both within the World Bank and elsewhere--relating to education's role in economic productivity--I will make the case here that education has a powerful role to play in alleviating hunger.

There is only time to make a few assertions. A list of eferences to selected research studies is attached to my written statement. With your permission, in the next few minutes I would like to call your attention to three points. The *first* is the statistical relationship which has been established between education and specific behavioral patterns which affect hunger--nutrition and health practices, fertility preferences, and food crop production. The *second* point is how, by what means, education affects these behaviors. *Third*, and perhaps most important if we are concerned about hunger is why we need to worry a great deal right now about education in the developing countries.

First, we can be quite sure that basic education contributes to improved health practices, lower fertility, better nutrition and igher levels of efficiency in agricultural production. Researchers are hesitant to attribute causes when all we have are statistical indicators of association, but the body of recent research on these subjects leads me to believe that, where medical and agricultural inputs are available, education helps people make good use of these inputs. Studies listed among the references indicate that better educated parents--especially the mothers--are able to care for their children's health better. They are more likely to use boiled water; they are more likely to supplement a starch diet with groundnut and other vegetable proteins; they are more likely to space their children and thus be able to afford them; and most importantly, they are more likely to pass on these behaviors to their children. Thus the impact of education increases over generations (Table 1).

In the area of agricultural productivity, we have quite clear findings that farmers with higher levels of basic education achieve higher agricultural production. Let me call your attention to Table 2. This table shows the results of 17 studies of farmer education and productivity. Where the complementary inputs required for improved farming techniques were available,[1] annual net rice or grain yield of a farmer who has completed 4 years of primary schooling is about 13.2 percent more than one who has not attended school at all. Where complementary inputs are not available the increase is about 8.1 percent.

---

[1] Improved seeds, transport to markets and so on.

Does this imply that primary education can replace new seed varieties as the engine of agricultural development? Or replace reforms of agricultural prices? Or better access to markets? Does it mean that education can replace nutritional supplements for malnourished infants? No it does not.

What these studies suggest is sustainability of interventions. Mr. Chairman, as you well know, interventions can be of two kinds--those which solve a problem for the moment such as famine relief; and those which act to prevent a future occurrence. Education appears to act in the latter capacity by making other interventions in agriculture and in health sustainable.

Now the question is how. How is it that attending a school can make such a difference? So far as we are aware, Mr. Chairman, there are two basic mechanisms, one loosely termed COGNITIVE SKILLS, another generally referred to as ATTITUDES. By and large, schooling is responsible for most of the cognitive skills found within a population of a developing country. These include the following three types: the ability to process information in written and numeric form (reading and writing); the awareness of basic facts (what lungs do; where gasoline comes from, etc.); and familiarity with certain theories (the connection between germs and disease; the link between firewood, deforestation and soil erosion, etc.). I believe that these skills are prerequisites to modern, entrepreuneurial agriculture (see Table 3). Badly provided or well, efficiently or not, schools are the source of these skills.

In terms of ATTITUDES, it appears that schools provide two ingredients for adult life. First, they strongly influence **the desire to know,** the wish to seek further information. Second, they greatly affect a person's **confidence to face changes.** New practices, new behaviors, Mr. Chairman, where there is extreme poverty, these do not come free of risk. When life is close to the edge of hunger, it takes an extraordinary person to alter previous practices, to plant a new type of seed for instance. Schooling is the best source of these attitudes.

Moreover, the ability of schooling in developing countries to provide these outcomes is greatly affected by the quality of educational inputs within the school itself, (see Figure 5, page 8 of "Investing in Children".) This figure shows the proportion of variance in science achievement attributable to educational inputs in 29 countries, including 10 developing countries and 15 OECD countries, including our own, the United States. To be sure the effects are not linear, but to a large extent factors having to do with the school itself (good teachers, availiability of reading materials), affect the learning outcomes in the developing countries far more than in the developed countries. In India 90 percent of the variation in science achievement can be attributed to the quality of the school itself; in Brazil it is 85 percent. But in Australia it is only 21 percent and in the USA it is about 33 percent. What this means is that in the developed countries science achievement is heavily influenced by parental social status, the quality of the home environment, neighborhood facilities and the like. In developing countries these factors are much less powerful. The most important predictor of school outcomes is the quality of the school itself. What this implies, Mr. Chairman, is that the outcomes of education which strongly affect the sustainability of other interventions, and which affect the re-occurrence of hunger, these outcomes are within our control in developing countries. We know how to improve them. In managerial terms, Mr. Chairman, we know how to "deliver" them.

Then what is the problem? The problem is that we have a crisis in education in developing countries. Developing countries, since 1960, have been able to build systems of education and basic schooling for virtually 80 percent of their child populations. These systems are now threatened by erosion of school quality, by a "famine" if you will of the means necessary to make them work.

If I may Mr. Chairman, let me illustrate what has happened in the last few years by means of an example, (see Figure 7, page 11 of Investing in Children.) In 1960, the ratio of spending/student between OECD and low-income countries (what we call "IDA" countries) was 14:1; that is 14 times more was spent for each enrolled elementary school child in OECD countries than in IDA countries. By 1970, however, that ratio had changed to 22:1. Then came the petroleum crisis, the drop in commodity prices, the rapid change in exchange rates of local currencies against the U.S. dollar, and the current crisis of servicing national debts. Governmental resources in low-income countries declined precipitously. Today the ratio is 50:1. Fifty times more is spent on students in this country and in other OECD countries than can be spent on students in an IDA country. In fact, per/elementary student expenditures in IDA countries actually declined in real terms by one third (from US$122 to US$81) between 1970 and 1980.

Where have these cuts been made? They have not been made in a planned, professionally rational way. Cuts have been made where political risk would be the smallest--basically in the non-salary portions of the education budgets, that portion of the budget which supports textbooks, reading materials, furniture, chalk, blackboards and the like. Today, for instance, only one in 88 Malawian children has a desk.

Figure 6, page 9 of Investing in Children illustrates the current order of magnitude differences in non-salary expenditures in elementary schools in 20 countries. Countries such as Bolivia and Malawi are able to spend about one dollar/year in non-salary inputs; Malaysia, Venezuela and Spain are able to spend about 50 dollars/year. And countries such as Japan and Norway are able to spend 300 dollars/year in non-salary inputs for each of their elementary school children.

Let me mention one country example, that of Uganda. I know it well because I gathered the information personally. Ugandan education was never abundant. But in 1970 there was, on average, one book available for every 3 elementary school children. But between 1970 and 1980 there were essentially no new reading materials available. By 1980 the ratio had slipped to 1 book for every 12 children.

Table 1, Page 3 of Investing in Children, illustrates the stages of educational quality currently found around the world. Uganda is an example of **Stage one**, Mr. Chairman. This is a stage where all one can expect to come out of the system is rote memorization of poorly interpreted information. There is little for school children to read any more in this category of school system. About a third of the developing countries in the world are in this category of school quality. These are our biggest targets, our biggest worries. They are also, I might add, the same countries where hunger is the most acute.

In general, in developing countries, systems of education currently absorb between two and three dollars of every ten dollars available to a government. In elementary education non-salary expenditures have slipped to below two percent of the recurrent budget. These are not efficient systems, Mr. Chairman. Systems of education are slowly crumbling from the inside, principally from a starvation of materials. It simply is not efficient to pay a teacher to copy information from the one available text onto a blackboard from which students then attempt to copy into a note book and memorize. This "copy/copy" situation has to change. The crisis we have on our hands is not simply a crisis of declining quality; rather it is a crisis of ineffective expenditures of very large portions of a national budget.

Thus we have several interests involved. We have an interest because we believe better education will sustain the interventions necessary to prevent hunger. We have an interest because a strong education system is necessary for national growth. But we also have a fiscal interest. We are interested because public resources are so scarce, that countries cannot afford to spend what they do have in an ineffective manner.

The question, Mr. Chairman, is what to do. Is there a way in which our goals of increasing the effectiveness of public expenditures can be matched with what I presume is this committee's goal, that of preventing large-scale problems of hunger? I think there is, and I would like to make three specific recommendations.

First is the role of the governments themselves, and specifically the education ministries within the governments. To a very large extent, Mr. Chairman, new resources for supporting non-salary inputs into basic education can be found from within the education sector itself, through policy reform. Over the last two years we have met with the Ministers of Education from 35 countries that are facing this crisis. We have conducted these meetings privately, away from the press. We have included representatives of local ministries of finance and of planning, and jointly we have sought ways to find new resources from within the education sector. We have discussed raising fees in higher education; privatizing technical education; narrowing curriculum to emphasize basic skills; double shifting classes; hiring skilled but unlicensed teachers; and reforming the system of fiscal incentives so that parents and local communities have a reason to invest in their local schools. Some of the solutions are politically volatile. Nevertheless, Mr. Chairman, there is progress. There is reform in the developing countries; in some cases, courageous reform; and in some cases Mr. Chairman, the reforms are well ahead of the reforms currently causing such crisis in Western Europe. I can envision a time, not far away, when one will be able to point to developing countries as models of policy reform in education. The point is, Mr. Chairman, that the first responsibility is up to the governments themselves.

Next is the private sector. Textbooks sent from this country from school districts which no longer need them do reach their targets in developing countries. They are utilized. Of course they are not 100 percent appropriate; of course they do not fit the local curriculum exactly. But relevance, Mr. Chairman, is a relative term: a second-hand book is better than none. Efforts of church groups and other charitable organizations have proved to be extraordinarily effective in recent years in the field of education. Mr. Chairman, you can tell if a school in Africa or Latin America has a sponsor in Europe or America by walking around it. It is physically different, and I can assure you, admission is highly coveted. We should do everything we can to encourage these efforts of the private sector.

Last is the role of official bilateral and multilateral assistance. Mr. Chairman, I have been working in the field of education since the 1960's when I started out as a Peace Corps Volunteer teacher.

Since I can remember there have always been inter-institutional differences in approach to education; between the World Bank and USAID; between UNESCO and ILO; between UNICEF and British ODA, or ODA and the French. But the fiscal crisis in developing countries has narrowed these differences. There is now a unanimity of understanding and an unprecedented level of cooperation and collaboration. Raising the quality of basic education is priority number one for us all. Let me remind the committee that I am not at the moment speaking as an official representative of any of these agencies; only as an individual. But, Mr. Chairman, I believe our problems are common. We are faced with an inadequate level of resources to help. We do not have enough public assistance to make the difference in basic education. Whether we are French, or British, or American, or whether we work for a regional development Bank or, as I do, for the World Bank, we are faced with a scarcity, and sometimes a declining level of resources with which we can help.

Let me then summarize Mr. Chairman.

First, it is clear that education helps make other interventions against hunger sustainable. It does this by laying the foundation of proper cognitive skills and attitudes. Second, we know how to improve the quality of basic education; it is within our grasp technically and managerially. Third--and here lies our main concern—the quality of education is on the decline in developing countries. Students are learning less than they did a decade ago because there is nothing to read in the schools anymore.

But Mr. Chairman, there are steps which can be taken to solve the crisis. The first are decisions which can be taken by local governments themselves. The second is assistance which can be provided by the private sector. The third can be influenced by this Committee, Mr. Chairman, and that is to increase the flow of official development assistance in education.

Mr. Chairman, Members of the Committee, thank you for your attention. Thank you for giving me an opportunity to speak to you this morning.

References

1. Aklilu, H., G. Psacharopoulos and S. P. Heyneman, Education and Development: Views From The World Bank. Washington: The World Bank, 1983

2. Cochrane, S. Fertility and Education: What Do We Really Know? Washington, D.C.: World Bank, 1979

3. Cochrane, S.; J. Leslie and D. O'Hara "Parental Education and Child Health: Intra-Country Evidence" in World Bank Staff Working Paper 405, "Effects of Education on Health", Washington: 1980

4. Eisemon, T.O. "Benefiting from Basic Education in Developing Countries: A Review of Research on the Educational Antecedents of School Effects". McGill University Centre for Cognitive and Ethnographic Studies (mimeo), 1986

5. Education and Training Design Division, World Bank, Investing in Children, Background Notes to accompany a slide show of the same title. Washington: Economic Development Institute, the World Bank, 1986

6. Heyneman, S. P. and W. A. Loxley; "The Effect of Primary-School Quality on Academic Achievement Across Twenty-nine High and Low Income Countries," American Journal of Sociology 88 (May, 1983), pp. 1162-94

7. Heyneman, S. P. and D. S. White (editors) The Quality of Education and Economic Development. Washington, D.C.: World Bank, 1986

8. Heyneman, S. P. "Education During a Period of Austerity: Uganda, 1971-1981." Comparative Education Review 27 (October, 1983), pp. 403-13.

9. Jamison, D. and P. Moock, "Farmer Education and Farm Efficiency in Nepal" World Development Vol. 12, No. 1 (1984), pp. 67-86

10. Lockheed, M., D. Jamison and L. Lau, "Farmer Education and Farm Efficiency" Economic Development and Cultural Change Vol. 29, No. 1 (1980), pp. 37-76

11. Moock, P. "Education and Technical Efficiency in Small-Farm Production". Economic Development and Cultural Change, Vol. 29, No. 4 (1981), pp. 723-39

12. Moock, P., J. Leslie "Childhood Malnutrition and Schooling in Terai Region of Nepal" Journal of Development Economics Vol. 20 (1986), pp. 33-52

13. Psacharopoulos, G. "The Contribution of Education to Economic Growth: International Comparisons" in Kendrick, J. (ed) International Comparisons of Productivity and Causes For The Slowdown. Cambridge, MA: American Enterprise Institute/Ballinger (1984), pp. 335-60

14. Ware, Helen, "Effects of Maternal Education, Women's Roles and Child Care on Child Mortality" in a Special Issue of Population and Development Review, Supplement to Vol. 10, 1984: "Child Survival: Strategies For Research"

15. World Bank, World Development Report, 1980. Washington, D.C.: The World Bank, 1980

16. World Bank, Poverty and Hunger: Issues and Answers for Food Security in Developing Countries. Washington, D.C.: The World Bank, 1986

Table 1

Cross-Tabular Studies on Age-Adjusted Fertility of the Educated and the Uneducated

Study (date published)	*Location*	*Illiteracy rate (percent)*	*Data source[a] (sample size)*	*Characteristics[b]*	*Direction of relation*	*Percent difference between educated and uneducated*
Amani (1971)	Iran	(F) 88 (1966)	1971 Tehran (1,338)	(F)	inverse	− 4
Dow (1971)	Sierra Leone	(A) 73 (1968)	1969–70 survey (5,962)	(F) total	inverse	−19
				(F) freetown	inverse	−13
				(F) towns	direct	+ 4
				(F) villages	inverse[c]	−15
Ekamen (1974)	Nigeria	(A) 89 (1952–53)	1971–73 rural (745)	(F)	inverse	− 4
Goldstein (1972)	Thailand	(F) 44 (1960)	1960 census	(F)	inverse	−10
Rule (1963)	India	(F) 87 (1961)	1956 rural (2,380)	(F)	inverse[c]	− 6
				(M)	inverse	− 5
Stycos and Weller (1967)	Turkey	(F) 73 (1965)	1963 urban and rural (2,700)	(F) urban	inverse	−36
				(F) rural	inverse	− 6
Yaukey (1963)	Lebanon	(F) 14 (1971)	1956 urban (613)	(F) Christian	inverse	−20
				(F) Moslem	inverse	−32
World Fertility Survey (1977)	Nepal	(F) 93.8 (1976)	1976 national (5,665)	(F) married 0–5 years	inverse	−20
				(F) married 5–9 years	direct	+18
				(F) married 10–15 years	direct	+10

Note: (F) = education of women; (M) = education of men; (A) = education of adults.
a. Surveys are identified by the date, area studied, and sample size.
b. Relations are specified by the characteristics of samples reported, sex, residence, and employment.
c. Size of one group is too small for meaningful comparison.
Source: For complete references, see the sources for this chapter.

Source: Cochrane, S. Fertility and Education: What Do We Really Know Washington, D.C.: World Bank, 1979, page 34.

Table 2

Farmer education and farmer productivity

Study	Estimated percentage increase in annual farm output due to four years of primary education rather than none
With complementary inputs[a]	
Brazil (Garibaldi), 1970	18.4
Brazil (Resende), 1969	4.0
Brazil (Taquari), 1970	22.1
Brazil (Vicosa), 1969	9.3
Colombia (Chinchina), 1969	−0.8
Colombia (Espinal), 1969	24.4
Kenya, 1971-72	6.9
Malaysia, 1973	20.4
Nepal (wheat), 1968-69	20.4
South Korea, 1973	9.1
Average (unweighted)	13.2
Without complementary inputs	
Brazil (Candelaria), 1970	10.8
Brazil (Conceicao de Castelo), 1969	−3.6
Brazil (Guarani), 1970	6.0
Brazil (Paracatu), 1969	−7.2
Colombia (Malaga), 1969	12.4
Colombia (Moniquira), 1969	12.5
Greece, 1963	25.9
Average (unweighted)	8.1
No information on availability of complementary inputs	
Average of eight studies (unweighted)	6.3

a. Improved seeds, irrigation, to markets and so on.

Source: World Development Report 1980 Washington, D.C., World Bank, 1980

Table 3

Four Basic Stages of Agricultural Productivity and Their Learning Requirements 1/

Farmer-entrepreneurs technology level	Agricultural inputs	Minimum learning requirements
LEVEL A: Traditional farming (techniques passed from parent to child)	Local varieties of seeds and implements.	Addition and subtraction --not necessarily acquired through formal education.
Level B: Intermediate Technology	Small quantities of fertilizer.	Addition, subtraction, division and rudimentary literacy.
Level C: Fully improved technology	High-yielding varieties; proven seeds; seed rates/acre; fertilizer rates/acre; and pest control rates/acre.	Multiplication, long division, and other more complex mathematical procedures; reading and writing facilities, and rudimentary knowledge of chemistry and biology.
Level D: Full irrigation-based farming	All above inputs; tube-well access during the off-season; and water rates/acre.	Mathematics, independent written communication, high reading comprehension, ability to research unfamiliar words and concepts; elementary chemistry, biology, physics; and regular access to information from print and electronic sources.

Source: S. Heyneman, "Improving the Quality of Education in Developing Countries," in Education and Development: Views from the World Bank., Washington D.C.: World Bank, 1983

1/ Direction from agricultural extension agents is helpful at any stage, but the essense of a farmer-entrepreneur is his ability to calculate his own production function.

Table 4

Refer to Investing in Children, Figure 5, Page 8.

Table 5

Refer to Investing in Children, Figure 7, Page 11.

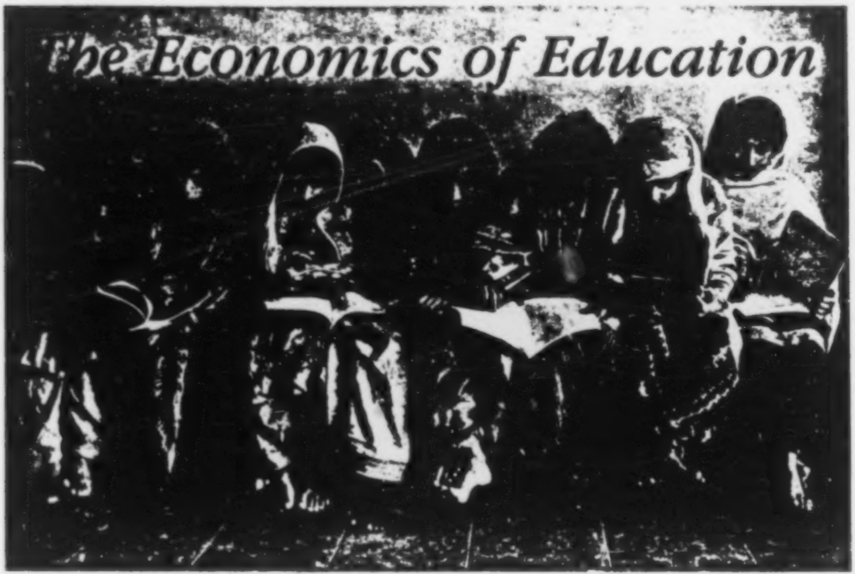
Table 6

Refer to Investing in Children, Figure 6, Page 9.

Table 7

Refer to Investing in Children, Table 1, Page 3.

INVESTING IN CHILDREN



The Economics of Education

Education and Training Design Division
Economic Development Institute
World Bank

Acknowledgments

The Background Notes were written and developed through the efforts of the Economic Development Institute and a number of individuals, including Daphne Siev White and J. Tait Davis. Stephen P. Heyneman is Chief of the Education and Training Design Division at EDI. Interactive Image Technologies Ltd. of Toronto produced the booklet with the kind assistance of the Canadian International Development Agency.

The Background Notes are intended to accompany a 12-minute slide show of the same title. ***Investing in Children: The Economics of Education*** is available on videocassette in all formats. It is also available in English, French, Spanish and Portuguese versions.

For price and order information contact:
The World Bank
Economic Development Institute
Education and Training Design Division
1818 H Street, N.W.
Washington, D.C.
20433
U.S.A.

© World Bank, 1986

COVER PHOTO BY JOHN ISAAC/UNICEF

DAPHNE NOY WHITE WORLD BANK

"Schooling is more than a consumption activity, in the sense that it is not undertaken solely to obtain satisfactions or utility while attending school . . . . As an investment, schooling adds appreciably to the savings of low-income countries."
THEODORE W. SCHULTZ, WINNER OF NOBEL PRIZE FOR ECONOMICS

"Developing countries have little scope to reduce educational quality any further. The quality gap between low- and high-income countries is already enormous. Bolivia, El Salvador, Malawi and the Ivory Coast, for instance, spend less than $2 a year on classroom materials for each child at primary school — compared with more than $300 per student in Scandinavian countries. This gap seems to be widening . . . ."
WORLD DEVELOPMENT REPORT, 1984

"Leading educators and economists are in agreement. Education in developing nations is in crisis. A crisis, they say, that may dramatically retard economic growth."
FROM *INVESTING IN CHILDREN: THE ECONOMICS OF EDUCATION*

Worldwide experience over the past two decades demonstrates that education is a prudent economic investment, one that consistently earns high rates of return. Research also shows that the returns are particularly high for educational investments in the *poorest* countries.

Yet, because of stringent economic constraints, developing countries are finding it harder to find money to invest in education. At the same time, industrialized countries are spending more money on their educational systems. And, although the relationship between education and economic growth is complex, there does seem to be a direct link between the presence of a literate workforce and the ability of a nation to create and apply technology.

The purpose of *Investing in Children: The Economics of Education* is to explore the relationship between education and economic productivity and to look at recent trends in educational funding in developing countries.

This booklet is intended to accompany the audio-visual presentation *Investing in Children: The Economics of Education* and to expand on the concepts presented there.

THE ECONOMICS OF EDUCATION

As population increases in developing countries, there is less money to spend on teaching materials — but there is more money available in industrialized countries. The education spending gap is growing.

Population and fiscal pressures

More people are being educated today than at any time in history, principally due to the efforts of developing countries. In 1950, just 37 percent of all school-aged children were enrolled in primary schools. The enrollment rate grew to 58 percent in 1970 and is higher than 70 percent today.

Universal primary education has been achieved in 35 of the wealthier developing countries, including Argentina, Gabon, Malaysia, Trinidad and Tobago. Other countries such as China, India, Indonesia, Nigeria and Brazil have reached near-universal levels.

Until the economic crisis of the 1970s, some of these countries were making significant progress in raising their education spending levels. Students benefited from more plentiful and better-quality instructional materials, their teachers received better training, and often class sizes decreased to more manageable levels.

These improvements in the middle-income countries, however, have not begun to narrow the gap in the quality of education between this group and industrialized countries, and in many ways the economic crisis of the late 1970s and the 1980s has caused a slippage in educational quality.

Meanwhile in many of the lowest-income developing nations, population increases and changes in the world economy are putting even more pressures on government budgets, and this of course affects education budgets. In Africa, for example, the projected increase in population will be nearly 40 percent by 1990. That means that in order to attain universal primary education by the year 2025, the proportion of gross national product devoted to education in African countries will have to *double*.

In developing countries, government resources have been severely strained by the fluctuation of oil and energy costs as well as slumping commodity prices. Exacerbating this is the effect of the inflated U.S. dollar on foreign debts and the difficulties faced by newly emergent nations in finding and implementing correct internal policies that lead to economic growth.

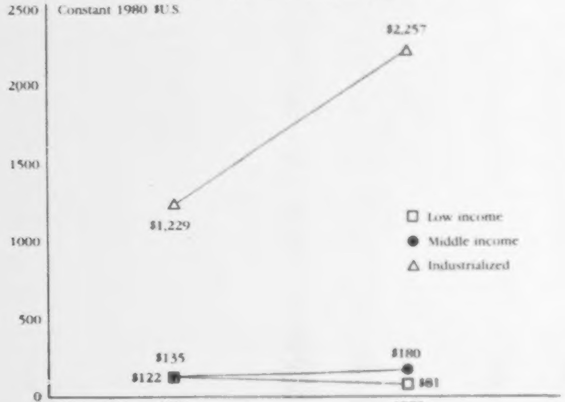
As a result of these pressures, the proportion of gross national product allocated to education has been declining in many regions of the developing world [illegible] is the share of education spending in government budgets. One study showed that in Latin America, public spending per primary school student fell by almost 45 percent in real terms between 1970 and 1978, and the decline has continued since then. As a share of educational budgets, spending on non-wage items — chalk, maps, textbooks and so on — fell in eight out of 10 Latin American countries.[1]

This decline in educational financing is particularly severe in Africa. In Somalia, the share of government spending devoted to education had to be halved between 1975 and 1983, falling from 12 percent to 6 percent; during the same period, Nigeria was forced to cut its education spending from 16 percent to 9 percent of the national budget, while Kenya had to cut its share from 19 percent to 15 percent.

Figure 1 shows that while expenditures per student are increasing radically in industrialized countries, they are growing modestly in many middle-income countries and are on the decline in the lowest-income countries.

In this latter group there is very little money with which to buy textbooks, notebooks, chalk and other instructional materials that are taken for granted in industrialized countries. In addition, in many classrooms, the student/teacher ra-

Figure 1. Total recurrent expenditures per student



Source: Bruce Fuller and Stephen P. Heyneman, "School Quality in Developing Countries: Little Progress, Future Potential" (World Bank, forthcoming).

JOHN FORASTE/BROWN UNIVERSITY

tio is very high, and teachers are not sufficiently trained — the primary method of instruction is rote repetition, for lack of any resources to make it otherwise. Table 1 illustrates the typical kinds of instruction that occur depending on the amount of resources available.

It should not be surprising, then, that the achievement level of many students in developing countries is comparatively low. While international comparisons of student achievement must be approached carefully due to differences in curricular objectives, or when different languages or testing styles might affect the results, a clear pattern nonetheless emerges from most studies. In one large international study, for example, one conclusion was inescapable: the mean score for students in developing countries was in the bottom 5 to 10 percent of students from industrialized countries. Figure 2 illustrates this result with respect to primary school science achievement in 19 countries.

Alternatively, measuring the performance of school systems yields equally discouraging signs. In Peru, 37 percent of all children have to repeat the first grade. In Bangladesh, only one-quarter of all children are able to complete the fourth grade. And even in countries such as Chile, Thailand, Iran and India, only half the students

Table 1. Stages of development in school quality

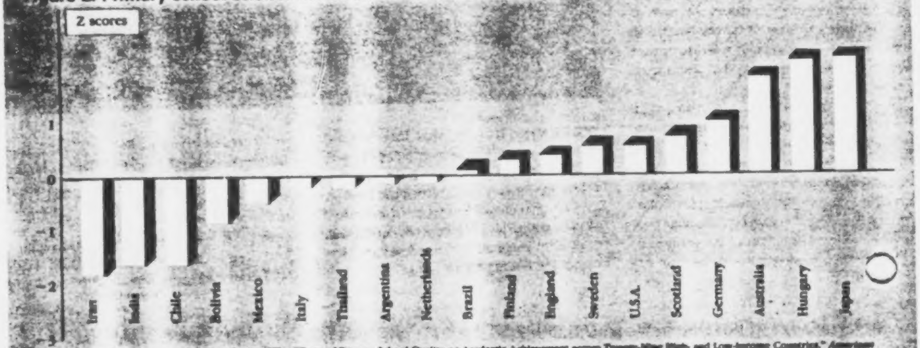
Annual cost primary student in classroom materials ($ U.S.)	*Indicator*	*Product*	*Example*
Less than $1.00	One textbook/class. With some exceptions the teacher has the only available book. Pupils expected to copy the text from the blackboard and memorize.	Rote memorization of unsophisticated and poorly interpreted information.	Uganda Liberia Haiti
$ 3.00	One textbook/student. Each student has access to one book in each subject. Comparatively little prerequisite teacher skills beyond those required at the above stage.	Major expansion of information and the efficiency of presentation; little progress on self generated skills of investigation.	Philippines People's Republic of China
$ 40.00	Several different textbook titles available for each student; pupils in lower grades work on locally designed exercises; teacher picks and chooses from among the best or most appropriate available materials. Requires significant intellectual independence on the part of teachers.	Latitude of educational programs based upon individual student ability; significant increase in the mastery of cognitive skills.	Malaysia
$200.00	Fifteen titles per student in supplementary reading material or 40 books total per student in addition to a wide variety of curriculum packages, reference books, maps, dictionaries, film strips, lesson tapes, documentary films and computer-assisted instruction. Significant managerial skills required on the part of teachers at all levels of education.	Self generated habits of learning, ability to investigate new ideas and to recognize strong and weak supporting arguments; major improvement in cognitive creativity; wide exposure to culture as well as science.	Japan U.S.A. Sweden

Source: Stephen P. Heyneman (unpublished)

THE ECONOMICS OF EDUCATION

Education has been linked to increases in agricultural productivity. Improving the quality of school graduates enables other sectors to function more efficiently.

Figure 2. Primary school science achievement in 19 countries



Source: Stephen P. Heyneman and William Loxley, "The Effects of Primary School Quality on Academic Achievement across Twenty-Nine High- and Low-Income Countries," American Journal of Sociology, vol. 88 (May, 1983).

who begin first grade are able to make it to the fourth grade.

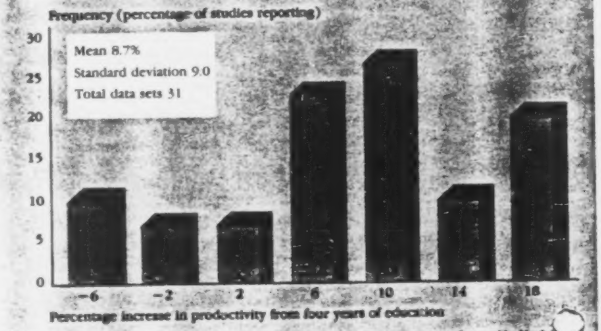
Investing in human capital

"The wealth of nations [has] come to be predominantly the acquired abilities of people — their education, experience, skills and health. . . . The future productivity of the economy is not foreordained by space, energy and cropland. It will be determined by the abilities of human beings. It has been so in the past and there are no compelling reasons why it will not be so in the years to come."

THEODORE W. SCHULTZ

Economist Theodore W. Schultz, who won the Nobel Prize in 1979, was the first to develop the theory of human capital. That theory states that the skills and abilities of human beings should be considered as capital — they are as important to the wealth of nations as land or physical infrastructure.

Figure 3. Results of studies relating schooling to agricultural productivity, unweighted



Note: These studies calculate net value while controlling for intervening influences such as weather, wealth of land, [illegible] to agricultural extension, prices, etc.

Source: Marlaine E. Lockheed, Dean T. Jamison and Lawrence J. Lau, "Farmer Education and Farm Efficiency: A Survey," *Economic Development and Cultural Change*, vol. 29 (October, 1980).

DAVID MANGURIAN INTER-AMERICAN DEVELOPMENT BANK

And those working in developing countries have come to realize that investing in physical infrastructure without developing the concomittant human skills often results in failure. Many factories, hospitals and other development projects have been built at great expense, but now they stand empty or in disrepair because there are not enough trained people to run them.

Although an educated workforce is necessary for the success of most development initiatives, it is of course not enough in itself. Educational investment is a necessary, but not a sufficient, condition for economic growth.

The relationship between education and economic growth is complex. It does seem clear, however, that improving the quality of school graduates makes it possible for other sectors — such as agriculture, industry and business — to function at higher levels of productivity and efficiency. In that sense, the *output* of education is an *input* to other sectors.

Agriculture is the largest economic sector in most developing countries, and education has been shown to have a positive impact on the productivity of farmers. An analysis of 18 studies exploring the relationship between education and agricultural productivity in 13 low-income countries found that the productivity of a farmer with four years of elementary education was, on average, 8.7 percent higher than that of a farmer with no education. When combined with access to complementary inputs such as improved seed varieties, fertilizer and access to agricultural extension, the positive effects of education increase crop yield by about two-thirds. Figure 3 shows a breakdown of this analysis.

The effect of education is most pronounced in "modernizing" environments wher[illegible] society is changing from traditional subsistence agriculture to market-oriented production. Thus, the achievement of higher levels of productivity depends on both the development of

Educational achievement and farmer productivity

Increases in agricultural productivity generally result from two basic types of technological innovations:

1. Improvements in equipment, tools and machinery, which increase the productivity of farm labor, and
2. Scientific developments in biology (higher yielding varieties) and chemistry (fertilizers), which increase the productivity of land.

When traditional farmers are introduced to new technologies, their abilities to make effective use of them depends on several factors. Table 2 identifies four increasingly complex levels of technology in agriculture, the changes in agricultural inputs required by each one and the knowledge and skill levels necessary for successful use of the innovation.

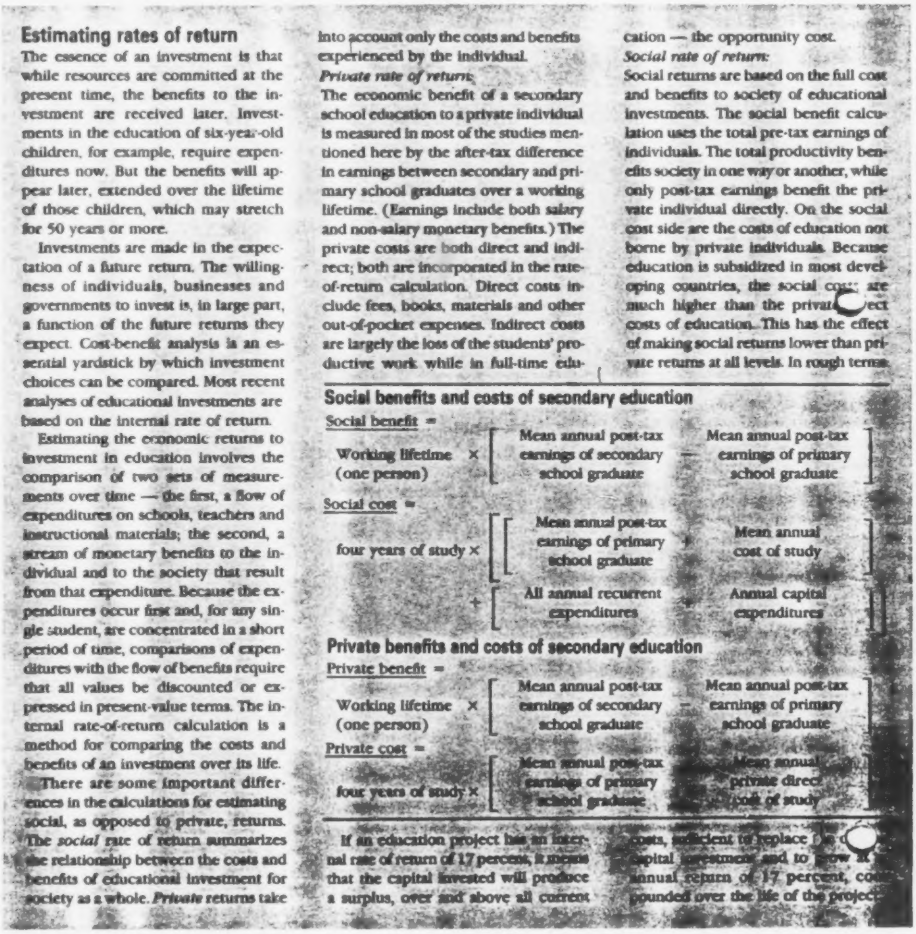
Table 2. Four basic stages of agricultural productivity and their learning requirements

Farmer-entrepreneurs' technology level	*Agricultural Inputs*	*Minimum Learning Requirements*
Level A Traditional farming techniques passed from parents to child	Local varieties of seeds and implements	Addition and subtraction — not necessarily acquired through formal education
Level B Intermediate technology	Small quantities of fertilizer	Addition, subtraction, division and rudimentary literacy
Level C Fully improved technology	High-yielding varieties: proven seeds, rate of application of seeds, fertilizer and pest control	Multiplication, long division and other more complex mathematical procedures, reading and writing abilities, and rudimentary knowledge of chemistry and biology
Level D Full irrigation-based farming	All above inputs, tubewell access during the off-season, and water rates per acre	Mathematics, independent written communication, high reading comprehension, ability to research unfamiliar words and concepts, elementary chemistry, biology and physics; and regular access to information from print and electronic sources

Source: Rista Harma, "The Farmer Entrepreneur and His Prerequisite Prior Education in Agricultural Development" (mimeograph, The World Bank, 1979).

THE ECONOMICS OF EDUCATION

The educational attainment of mothers has an effect on their children. Children of better-educated mothers are more likely to be enrolled in school, and they achieve at higher levels.



Estimating rates of return

The essence of an investment is that while resources are committed at the present time, the benefits to the investment are received later. Investments in the education of six-year-old children, for example, require expenditures now. But the benefits will appear later, extended over the lifetime of those children, which may stretch for 50 years or more.

Investments are made in the expectation of a future return. The willingness of individuals, businesses and governments to invest is, in large part, a function of the future returns they expect. Cost-benefit analysis is an essential yardstick by which investment choices can be compared. Most recent analyses of educational investments are based on the internal rate of return.

Estimating the economic returns to investment in education involves the comparison of two sets of measurements over time — the first, a flow of expenditures on schools, teachers and instructional materials; the second, a stream of monetary benefits to the individual and to the society that result from that expenditure. Because the expenditures occur first and, for any single student, are concentrated in a short period of time, comparisons of expenditures with the flow of benefits require that all values be discounted or expressed in present-value terms. The internal rate-of-return calculation is a method for comparing the costs and benefits of an investment over its life.

There are some important differences in the calculations for estimating social, as opposed to private, returns. The *social* rate of return summarizes the relationship between the costs and benefits of educational investment for society as a whole. *Private* returns take into account only the costs and benefits experienced by the individual.

Private rate of return:

The economic benefit of a secondary school education to a private individual is measured in most of the studies mentioned here by the after-tax difference in earnings between secondary and primary school graduates over a working lifetime. (Earnings include both salary and non-salary monetary benefits.) The private costs are both direct and indirect; both are incorporated in the rate-of-return calculation. Direct costs include fees, books, materials and other out-of-pocket expenses. Indirect costs are largely the loss of the students' productive work while in full-time education — the opportunity cost.

Social rate of return:

Social returns are based on the full cost and benefits to society of educational investments. The social benefit calculation uses the total pre-tax earnings of individuals. The total productivity benefits society in one way or another, while only post-tax earnings benefit the private individual directly. On the social cost side are the costs of education not borne by private individuals. Because education is subsidized in most developing countries, the social [illegible] are much higher than the [illegible] costs of education. This has the effect of making social returns lower than private returns at all levels. In rough terms

Social benefits and costs of secondary education

Social benefit =

$$\text{Working lifetime (one person)} \times \left[\text{Mean annual post-tax earnings of secondary school graduate} - \text{Mean annual post-tax earnings of primary school graduate} \right]$$

Social cost =

$$\text{four years of study} \times \left[\left[\text{Mean annual post-tax earnings of primary school graduate} + \text{Mean annual cost of study} \right] + \left[\text{All annual recurrent expenditures} + \text{Annual capital expenditures} \right] \right]$$

Private benefits and costs of secondary education

Private benefit =

$$\text{Working lifetime (one person)} \times \left[\text{Mean annual post-tax earnings of secondary school graduate} - \text{Mean annual post-tax earnings of primary school graduate} \right]$$

Private cost =

$$\text{four years of study} \times \left[\text{Mean annual post-tax earnings of primary school graduate} + \text{Mean annual private direct cost of study} \right]$$

If an education project has an internal rate of return of 17 percent, it means that the capital invested will produce a surplus, over and above all current costs, sufficient to replace [illegible] capital investment, and to grow at [illegible] annual return of 17 percent, compounded over the life of the project.

UNICEF

improved technologies and the ability of farmers to use those technologies. Table 2 illustrates this connection between a farmer's productivity using increasingly complex mixtures of inputs and the prerequisite cognitive requirements for understanding and managing those inputs.

Returns to education

Considerable evidence now exists regarding the private and social returns to education. Benefits to individuals and to society need to be taken into account in expressing the economic value of educational investments.

Rate-of-return analysis is one of the techniques used by policy-makers to make decisions regarding the profitability of competing investments. Educational rates of return are measured by comparing the private and social education costs with the lifetime earnings of adults. (For a more detailed explanation of how educational rates of returns are derived see inset: Estimating Rates of Return.)

Several clear patterns emerge from these studies. First, primary education is generally a more profitable investment than secondary education, and secondary education is a more profitable investment than higher education. (See Figure 4.) Thus, the rate of return to primary education in developing countries averages 24 percent, for secondary education it averages 15 percent, and for higher education it averages 12 percent.

A second pattern is that returns are highest in the *poorest* countries. The rate decreases with the level of economic development, because investment returns are expressed as percentages of increased value, and the base numbers for poorer countries are smaller than those for richer ones. This results in higher percentage increases for each unit increase in the poorest countries.

A third trend is that private rates of return in developing countries are consistently higher than social returns, particularly at the university level. This is because public subsidies shift the burden of costs from the individual to society as a whole.

Finally, where long-term studies are available, the returns to education have remained relatively stable over the past few decades. And rates of return to educational investments are well above the 10 to 12 percent yardstick commonly used by developing countries to indicate the opportunity cost of capital.

Some have argued that the estimates reported in these studies overstate actual, current rates of return to education because there has been educational expansion in recent years; because there is evidence that the quality of education has deteriorated; and because of increased difficulties experienced by school leavers in finding employment or productive non-wage activities in an environment of economic stagnation. Even so, the measured rates of return to educational investments are sufficiently high that they appear valid, even after reasonable downward adjustments.

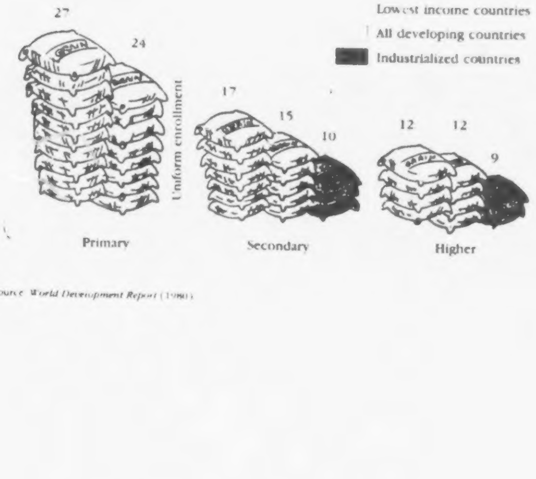
Non-monetary benefits of education

Rate-of-return analysis does not measure the indirect, non-monetary effects of education on health, nutrition and fertility. And yet, the indirect societal benefits of a literate population could significantly increase the social returns estimated on the basis of earnings differentials alone.

The educational attainment of mothers has been found to affect the health and

Figure 4. Rates of return to education

in percent



Source: *World Development Report* (1980).

It is difficult for developing countries to invest in education. On average, industrialized countries spend 7 percent of GNP on education; developing countries spend 4.5 percent.

cognitive development of children, in part through effects on family income, but also because of the mother's knowledge and use of good health and nutritional practices.[6] This relationship shows up clearly in the strong, consistent negative relationship between parental education and child mortality: the higher the mother's level of education, the less likely it is that her children will die.

There is a similar relationship between a woman's education and the number of children she bears, although this is not a linear relationship. (The number of children actually tends to increase with the first few years of schooling, before declining at higher levels of education.) In addition, the children of better-educated mothers are more likely to be enrolled in school and, once enrolled, to achieve at higher levels and to progress from grade to grade.

Studies also show that better-educated individuals tend to be healthier and to live longer. A 1 percent improvement in the national literacy rate is associated with a two-year gain in life expectancy, after controlling for per capita income and nutrition.[8]

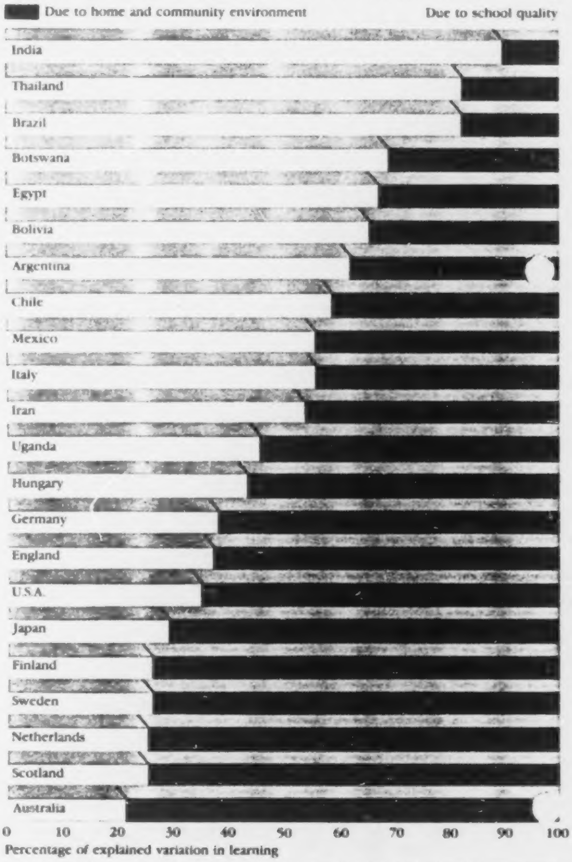
Smokescreens: is education just a screening device?

Some critics of educational investments argue that education is little more than a screening mechanism that does not add to social productivity. They claim that holding a diploma does not necessarily make a person more productive. Others claim that even though society often rewards credentialed people with higher wages, those wages do not always correspond to higher productivity.

Needless to say, this argument is rather controversial. But there is research indicating that workers who can read and write are more productive than those who cannot, and that this is reflected in their wages.

One study in East Africa, for example, found that workers who had only a primary education but achieved proficiency

Figure 5. Influences on primary school science achievement



Source: Stephen P. Heyneman and William Loxley, "The Effects of Primary School Quality on Academic Achievement across Twenty-Nine High- and Low-Income Countries," *American Journal of Sociology*, vol. 88 (May, 1983).

[redacted]

in reading and writing earned more than workers with a secondary school education who were less proficient in these skills. This demonstrates clearly that in this case, wages reflected actual skills achieved rather than level of diploma held.

Research also shows that non-wage workers such as farmers become more productive as they become more literate and trained in mathematical computations. As economist Theodore Schultz put it, "Who screens the farmers?"

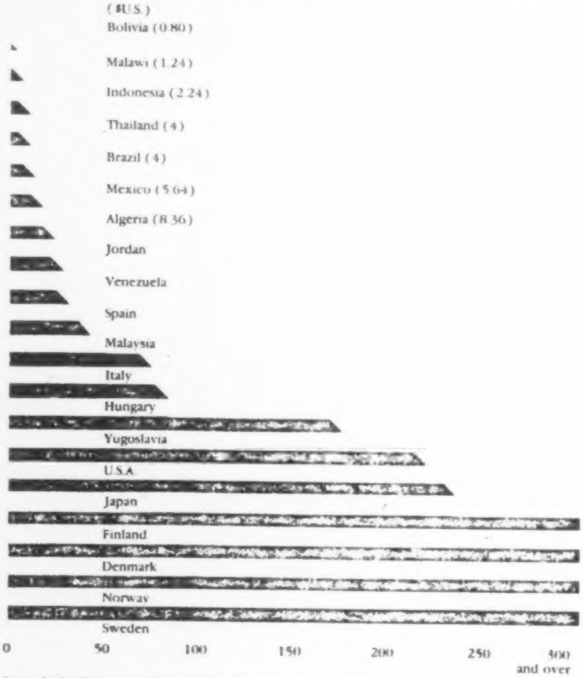
Effects of educational investments on achievement

Some have argued that the most important influence on learning in school comes not from the quality of the school but from the socio-economic environment of the home. Many studies have demonstrated that the influence of the home is indeed important, but most of these studies have been conducted in Europe and North America. When the same studies are conducted in developing countries, the results are very different. Figure 5 shows the results of these studies. It can be seen that the quality of the school in developing countries far outweighs the influence of the home (and other out-of-school influences) in determining student learning, and the poorer the country, the more true this is. This finding implies that an investment in the quality of schooling is likely to have significantly more impact in a developing country than in an industrialized country.

But what happens in a developing country when the quality of education is significantly improved? Can it make a sizable difference in terms of student achievement? One reasonably well-documented case is that of the Philippines. When the Philippine government decreased the student-to-textbook ratio in certain subjects from [illegible]:1 to 2:1, the proportion of students achieving at their proper "grade level" increased from 50 to 70 percent in one year.[10]

But experience with this investment also

Figure 6. Spending on classroom materials and other non-salary recurrent expenditures per student enrolled in primary school



Source: Stephen P. Heyneman, "Research on Education in Developing Countries," *International Journal of Educational Development*, 4 (1984).

THE ECONOMICS OF EDUCATION

Countries that decide to invest in education are embarking on a long-term investment. Yet these countries are building an infrastructure that will last for generations.

Textbooks in the Philippines

The Philippine government, with the assistance of the World Bank, launched a $37-million Textbook Project in 1977 to remedy the lack of textbooks in the nation's public schools. At that time, there were 10 pupils for each available primary school textbook. Low levels of investment in instructional resources were associated with below-average student achievement. Low levels of student achievement were reflected in high repetition and drop-out rates.

During the first year of implementation, the Textbook Project was responsible for the production of approximately 20 million first and second grade textbooks in science, mathematics and Filipino. These were distributed nationwide in the 1977–1978 school year. In the course of its five-year duration, the Textbook Project produced 97 million books covering all subject areas from first grade through high school. There were two students per book at each grade level in each subject. The books produced by the project cost an average of 55 cents each, with an average length of 180 pages. The overall program increased costs per student by about 1 percent.

The evaluation section of the project investigated the effects of this sizable investment on student achievement. The analysis, comparing the performance of groups with textbooks to that of those without, addressed two questions. The first was the degree to which student achievement was altered as a result of exposure to the new textbooks.

Two school districts were randomly selected from each of the 12 geographical regions in the Philippines (excluding Manila). Schools were then stratified according to central and barrio characteristics and random samples of 30 and 70 percent drawn. Finally, a random sample of 32 pupils was selected from all sections (homerooms) in grades 1 and 2 of the sample schools. In both grades, achievement tests were administered in science, mathematics and Filipino to students participating in the program and to a control group. Test results were then compared.

The overall effect of the first-year investment in textbooks was to raise the national level of academic achievement substantially. The average score achieved by 50 percent of pupils in first and second grade science without the new textbooks was obtained by 69 percent a year later. In Filipino and mathematics, what was achieved by 50 percent of students without the new textbooks was achieved by 63 percent a year later. These learning improvements reflect not a few experimental classrooms but gains achieved by eight million students in the nation's schools. The impact of the Textbook Project on achievement in science is twice that which studies show could result from reducing average class size in North America from 40 students to 10.

A second interest was the question of who benefits most from the introduction of new textbooks. Is the impact greater on students from more advantaged homes; or is the most pronounced effect on students from homes of relative poverty who have had the least experience with reading materials? The survey evidence collected from this project suggests that the intervention was more effective with children whose backgrounds were impoverished. The strength of intercorrelations between achievement and social background is significantly weaker for children participating in the project, particularly so in science and mathematics. Textbooks appear to have had their most pronounced effect on science achievement of low socio-economic status children.

Among North American educators there is some disagreement as to whether an improvement in physical resources can affect significantly the quality of educational results. In North America, where the availability of in-school reading material is roughly 140 times greater than it is in the Philippines, it may well be true that further increases in the supply will have a limited effect.

The circumstances in developing countries are completely different. There, where schooling itself is scarce, where classrooms are impoverished, and where both student and parent motivation for education is high, physical alteration in the quality of a school classroom, especially improved instructional materials, can have sizable effects. The experience of the Philippines Textbook Project makes a further point about investing to improve the quality of education. The success of this project was not due simply to having new textbooks, but rather to having [illegible] textbooks of high quality, delivered in an efficient manner, well understood and well used by teachers.

WORLD BANK

shows that it is not enough simply to provide textbooks and other classroom materials. Teacher training in the use of textbooks and careful attention to their design are essential if the improved instructional resources are to be used effectively. (For a more detailed description of this project see inset "Textbooks in the Philippines.")

The problem of low-quality instruction in developing countries seems especially serious at the primary level. This is a particularly serious problem because achievement at all subsequent levels depends on what is learned in the first years.

[illegible] erosion of quality reflects more than an underfunding of education, however. It also suggests a misallocation of resources, with too much emphasis given to capital expenditures and too little funding made available for recurrent costs such as textbooks and other instructional materials.

Underinvestment in education

The need to cope with natural disasters, such as the prolonged period of drought and famine in Africa, focused attention on short-term needs at the expense of the longer-term perspective required for educational investments.

Thus in some low-income developing countries, an inability to finance ongoing recurrent costs has meant that new schools have opened without qualified teachers and without support materials and equipment. As shown in Figure 6, countries such as Thailand and Brazil can only spend $4 per student a year on classroom materials. Middle-income countries such as Malaysia, however, have actually been able to increase the amount of money they spend on education to almost $50 per student per year. In contrast, the United States and Japan spend over $200 per student per year, and the Scandinavian countries spend more than $300 a year.

And so the gap in educational spending between developing and industrialized nations is widening. In 1960, the gap in spending per student between the richest and the poorest nations was 14:1. By 1970, the expenditure gap had grown to 22:1. By 1980, the gap had become a virtual gulf. The industrialized countries were spending 50 times more per student in nonsalary expenditures than were the developing countries. (Figure 7.)

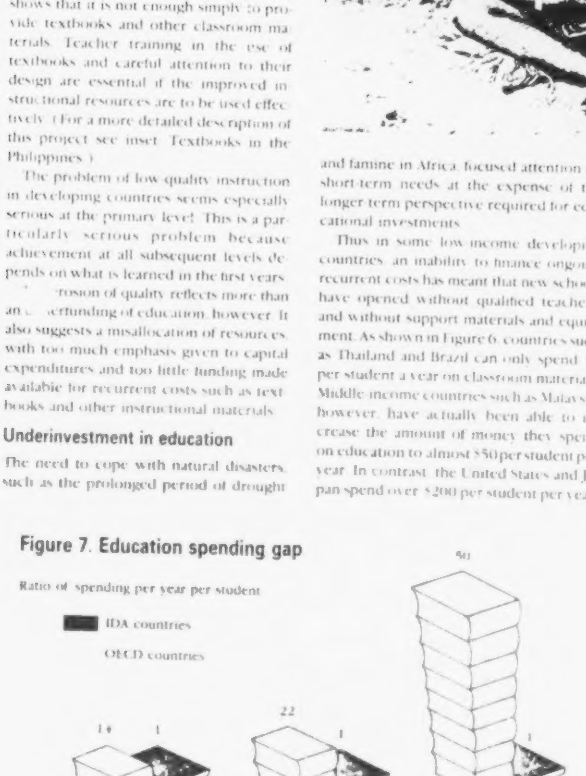
In conclusion

The idea that investment in human capital promotes economic growth dates from the time of Adam Smith and the early classical economists, who emphasized the importance of investing in human skills. In the 1960s, economists Schultz and E.F. Denison stimulated much research by showing that education contributed directly to the growth of national income by improving the skills and productive capacity of the workforce.

Research in this area, however, slowed during the 1970s because of a widespread slackening in the growth rate of developing countries, and a growing ambivalence in the industrialized world about the role of education in development. Higher priority was placed on sectors such as agriculture, in response to the basic food requirements of the rapidly growing populations, and the belief that higher output was attainable through direct means rather than being dependent upon prerequisites such as a farmer's education.

But research and development experience in the 1980s has reaffirmed the links

Figure 7. Education spending gap



[illegible] **International Development Association (IDA)** countries are the poorest developing countries eligible for interest-[illegible] concessional loans and credits from the World Bank. **The Organization for Economic Cooperation and Development (OECD)** includes the industrialized, developed countries of Western Europe plus the United States, Canada and Japan.

Source: Stephen P. Heyneman, "Improving the Quality of Education in Developing Countries," *Finance and Development*, vol. 1 1 (1986).

between education and economic growth. The experience of industrialized countries confirms what is generally recognized: a workforce that is literate and numerate is much more likely to adjust to the productive adaptations required in modern industry and agriculture.

The decision to invest in the development of human capital through education and training demands a long-term commitment to provide teachers, instructional materials and facilities. Although for many people learning is a privilege and a pleasure, and though some kinds of learning are more likely to contribute to economic productivity than others, spending on the education of children is an investment.

Investments in human capital support investments in physical infrastructure. But unlike physical infrastructure, which depreciates, the economic value of educational investments increases exponentially from one generation to the next.

Notes

1. World Bank, *World Development Report* (Washington, D.C., 1984).

2. World Bank, *World Development Report* (Washington, D.C., 1980).

3. Current research is reviewed and summarized in George Psacharopoulos and Maureen Woodhall, *Education for Development: An Analysis of Investment Choices* (New York: Oxford University Press, 1985).

4. Stephen P. Heyneman, "Improving the Quality of Education in Developing Countries," *Finance and Development* (1983).

5. Marlaine Lockheed, Dean T. Jamison and Lawrence J. Lau, "Farmer Education and Farm Efficiency: A Survey," *Economic Development and Cultural Change*, vol. 29 (October, 1980).

6. Susan H. Cochrane, Joanne Leslie and Donald J. O'Hara, "Parental Education and Child Health: Intracountry Evidence," *Health Policy and Education*, vol. 2 (1982).

7. Susan H. Cochrane, *Fertility and Education: What do we really know?* (Baltimore, Md.: Johns Hopkins University Press, 1979).

8. Samuel H. Preston, *Mortality Patterns in National Populations: With Special Reference to Recorded Causes of Death* (New York: Academic Press, 1976).

9. Maurice Boissiere, John B. Knight and Richard H. Sabot, "Earnings, Schooling, Ability and Cognitive Skills," *American Economic Review*, vol. 75, no. 5 (December, 1985).

10. Stephen P. Heyneman, Dean T. Jamison and X. Montenegro, "Textbooks in the Philippines," *Educational Evaluation and Policy Analysis*, vol. 6, no. 2 (1984).

Related reading

Beeby, C.E. *The Quality of Education in Developing Countries*. Cambridge, Mass.: Harvard University Press, 1966.

Cochrane, Susan H. *Fertility and Education: What do we really know?* Baltimore, Md.: Johns Hopkins University Press, 1979.

Colclough, Christopher. *Primary Schooling and Economic Development: A Review of the Evidence*. World Bank Staff Working Paper no. 399. Washington, D.C., 1980.

Heyneman, Stephen P. and William A. Loxley. "The Effect of Primary School Quality on Academic Achievement across Twenty-Nine High- and Low-Income Countries." *American Journal of Sociology*, vol. 88, May, 1983.

Heyneman, Stephen P. and others. "Textbooks in the Philippines: Evaluation of the Pedagogical Impact of a Nationwide Investment." *Educational Evaluation and Policy Analysis*, vol. 6, no. 2, 1984.

Heyneman, Stephen P. and Daphne Siev White. *The Quality of Education and Economic Development*, World Bank. Washington, D.C., 1986.

Heyneman, Stephen P. "Research on Education in the Developing Countries." *International Journal of Educational Development*, vol. 4, no. 4, 1984.

Hicks, Norman. *Economic Grow[illegible] and Human Resources*. World Bank Staff Working Paper no. 408. Washington, D.C., 1980.

Jamison, Dean T. and Lawrence J. Lau. *Farmer Education and Farm Efficiency*. Baltimore, Md.: Johns Hopkins University Press, 1982.

Layard, R. and George Psacharopoulos. "The Screening Hypothesis and the Returns to Education." *Journal of Political Economy*, vol. 82, no. 5, pp. 985-98, 1974.

Psacharopoulos, George and Maureen Woodhall. *Education for Development: An Analysis of Investment Choices*. New York: Oxford University Press, 1985.

Schultz, Theodore W. *Investing in People: The Economics of Population Quality*. Berkeley, Ca.: University of California Press, 1981.

Schultz, Theodore W. *The Economic Value of Education*. New York: Columbia University Press, 1963.

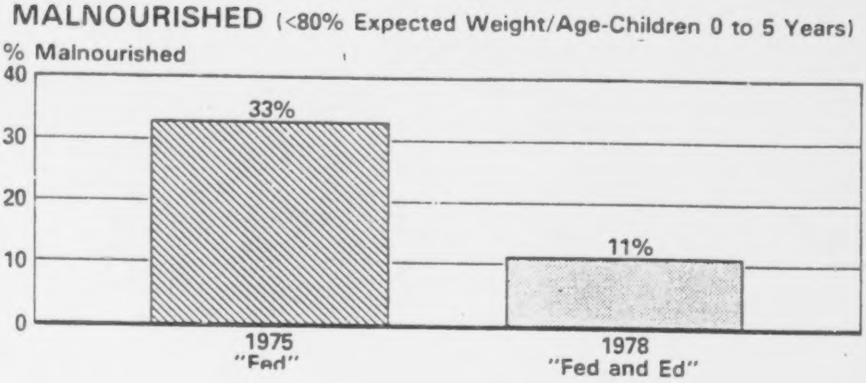
COUNTRIES IN GREATEST NEED OF BASIC EDUCATION

Country	Enrollment Rate	Female Enrollment	Completion Rate	Repetition Rate	Ed. as % of Publ. Budg.	Recurrent $$s/Pupil
Africa						
Burkina	16	16	25	16	19.8	65
Niger	17	17	56	14	22.9	--
Mali	20	20	60	27	30.5	59
Somalia	22	21	80	--	8.9	--
Burundi	29	25	35	29	17.5	50
Senegal	34	38	--	16	--	--
Sudan	51	43	68	--	5.0	109
Liberia	52	50	32	12	24.3	--
Malawi	62	51	23	17	29.8	226
Cameroon	74	97	45	30	20.3	--
Zaire	76	75	25	20	--	--
Asia/N.E.						
Yemen A.R.	37	17	12	--	15.1	--
Pakistan	50	31	41	--	5.0	18
Morocco	56	62	35	29	18.5	164
Bangladesh	63	51	--	--	8.2	7
Nepal	70	41	--	--	8.3	12
Lat. Amer./Car.						
Haiti	50	64	20	21	10.7	16
Guatemala	69	67	--	15	16.6	66
Bolivia	74	78	--	--	25.3	120
Honduras	89	98	30	16	15.0	88

Sources: Education for Development, George Psacharopoulos and Maureen Woodhall, World Bank, 1985
Financing Education in Developing Countries, World Bank, 1986
Staff Appraisal Report, Republic of Botswana, World Bank, 1985
Statistical Yearbook, UNESCO, 1983 and World Development Report, World Bank, 1985

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	female	male female	male female	male female	male female	[illegible]	male female
[illegible]	26/8	42/21	35/15	65/41	[illegible]	[illegible]	17/8
[illegible]	13/2	39/9	15/4	19/9	16/8	54	11/5
[illegible]	[illegible]	23/11	14/6	30/18	/	61	10/4
[illegible]	18/8	38/21	30/15	46/32	37/26	48	23/10
[illegible]	42/18	52/31	/45	76/54	52/42	28	6/2
[illegible]	21/7	40/17	44/16	49/23	35/16		21/8
[illegible]	8/1	/	11/3	58/34	/	49	17/9
[illegible]	5/1	18/6	13/5	28/15	21/11	33	19/10
[illegible]	29/14	55/22	60/36	91/68	51/41	26	8/4
[illegible]	13/3	21/6	12/5	34/20	28/16	75	5/3
[illegible]	16/7	49/	/	146/121	71/61	24	/
[illegible]	6/2	19/9	7/3	34/19	/	67	/
[illegible]	[illegible]	53/[illegible]	53/12	98/51	80/40	43	24/6
[illegible]	[illegible]	40/11	23/4	55/21	/	29	11/2
[illegible]	13/6	46/17	35/15	88/60	76/35	18	17/4
[illegible]	19/6	37/19	35/17	[illegible]	[illegible]	86	17/8
[illegible]	/	/	13/3	45/25	/	80	19/6
[illegible]	/23	/	/	/	/		/
[illegible]	27/8	47/23	45/18	95/57	/		33/13
[illegible]	43/21	61/33	68/30	64/60	60/57	47	3/1
[illegible]	9/1	27/3	14/	107/21	/	[illegible]	16/2
Yemen, Dem.	31/9	59/25	23/5	97/36	/	40	26/11
[illegible]	/	/	9/	33/17	/	25	6/1
Nepal	23/3	39/12	19/1	100/43	/	27	34/10
Pakistan	29/10	43/26	27/9	55/36 -	42/29		5/3
Bangladesh	36/12	43/22	66/26	67/55	60/50	20	26/11

EFFECT OF NUTRITION EDUCATION FOR MOTHERS ON CHILDREN'S NUTRITIONAL STATUS



Source: AID Project Impact Evaluation Report No. 8, 1980

In programs for malnourished children there is greater success in reducing malnourishment when both feeding and nutrition education for mothers are included.

AGENCY FOR INTERNATIONAL DEVELOPMENT
FUNDING PERCENTAGES FOR EDUCATION SUBSECTORS
FOR THE 1980S

SUBSECTOR	1980 ACTUAL	1981 ACTUAL	1982 ACTUAL	1983 ACTUAL	1984 ACTUAL	1985 ACTUAL	1986 EST.	1987 REQUEST
Basic Education	30.0%	26.8%	13.5%	11.3%	19.6%	22.1%	15.4%	15.3%
Manpower Development	26.7%	28.7%	45.5%	47.2%	38.7%	40.6%	44.4%	49.9%
Vocational/Technical Education	7.3%	11.1%	12.6%	16.2%	10.5%	9.8%	4.3%	6.2%
Labor Development	22.4%	20.1%	15.3%	14.0%	13.2%	9.1%	9.6%	8.9%
Other	13.6%	13.3%	13.1%	11.3%	18.1%	18.4%	26.3%	19.8%
TOTAL PERCENT	100%	100%	100%	100%	100%	100%	100%	100%
Total Appropriations ($000)	97831	102721	103880	114161	120698	186565	162134	179789

AGENCY FOR INTERNATIONAL DEVELOPMENT
FY 1987 SUMMARY OF OBLIGATIONS (IN $000)

The Education Sector	FUNC SUBCAT	1980 ACTUAL	1981 ACTUAL	1982 ACTUAL	1983 ACTUAL	1984 ACTUAL	1985 ACTUAL	1986 ESTIMATE	1987 REQUEST	TOTAL
Education and Human Resources										
Planning/Policy Analysis	EHPP	7,225	5,786	6,044	7,963	17,008	24,641	32,577	23,571	124,815
Research	EHRE	756	130	300	113	71	868	455	900	3,593
Elementary Education	EHED	13,575	17,207	7,352	9,225	18,998	35,648	18,184	22,308	142,497
Secondary Education	EHSD	1,602	1,388	1,035	621	---	---	---	---	4,646
Admin/Managerial Education	EHMA	14,643	15,184	27,862	28,499	22,270	30,901	34,541	36,550	210,450
Prof/Scientific Education	EHSP	11,115	14,136	12,870	21,750	20,593	41,138	35,768	51,345	208,715
Adult/Community Education	EHAC	14,204	8,915	5,675	3,028	4,596	5,492	6,838	5,150	53,898
Vocational/Technical Education	EHVT	7,141	11,355	13,051	18,545	12,681	18,277	6,893	11,169	99,112
Labor Development	EHLD	21,928	20,607	15,935	15,894	15,890	16,968	15,606	16,000	138,828
Development Administration	EHDA	350	180	6,505	3,670	3,809	3,758	1,672	1,750	21,694
US Institutions (PVOS)	EHPV	3,492	5,233	4,451	4,164	4,728	8,153	7,461	4,189	41,871
Not Classified	EHZZ	1,800	2,600	2,800	689	54	721	2,139	6,857	17,660
TOTAL APPROPRIATION		97,831	102,721	103,880	114,161	120,698	186,565	162,134	179,789	1,067,779

FUNDING PERCENTAGES FOR EDUCATION SUBSECTORS FOR THE 1980S: THE AFRICA BUREAU

SUBSECTOR	1980 ACTUAL	1981 ACTUAL	1982 ACTUAL	1983 ACTUAL	1984 ACTUAL	1985 ACTUAL	1986 EST.	1987 REQUEST
Basic Education	15.9%	13.7%	3.8%	5.6%	23.3%	26.8%	35.3%	30.4%
Manpower Development	39.2%	38.0%	56.1%	43.3%	46.5%	44.7%	38.2%	31.3% [39.1%]
Vocational/Technical Education	12.1%	8.4%	28.4%	36.8%	16.2%	8.5%	8.1%	9.0%
Labor Development	28.4%	30.2%	8.4%	10.2%	8.4%	11.9%	7.1%	9.2%
Other	4.4%	9.7%	3.3%	4.1%	5.6%	8.1%	11.3%	20.1% [12.4%]
TOTAL PERCENT	100%	100%	100%	100%	100%	100%	100%	100%
Total Appropriations ($000)	30343	25148	35845	29341	35827	35419	47558	36869

AGENCY FOR INTERNATIONAL DEVELOPMENT
FY 1987 SUMMARY OF OBLIGATIONS (IN $000)
THE AFRICA BUREAU

The Africa Bureau	FUNC SUBCAT	1980 ACTUAL	1981 ACTUAL	1982 ACTUAL	1983 ACTUAL	1984 ACTUAL	1985 ACTUAL	1986 ESTIMATE	1987 REQUEST	TOTAL
Education and Human Resources										
Planning/Policy Analysis	EHPP	1,092	2,448	1,178	1,218	1,929	2,867	4,346	3,350	18,428
Research	EHRE	230	---	---	---	---	---	---	---	230
Elementary Education	EHED	1,623	1,080	980	1,343	5,350	6,497	11,660	7,005	35,538
Secondary Education	EHSD	225	---	---	---	---	---	---	---	225
Admin/Managerial Education	EHMA	4,196	4,902	11,531	7,969	9,784	11,364	10,019	4,900	64,665
Prof/Scientific Education	EHSP	7,684	4,665	8,580	4,727	6,862	4,005	7,668	6,650	50,841
Adult/Community Education	EHAC	2,981	2,359	391	300	3,000	3,000	5,138	4,200	21,369
Vocational/Technical Education	EHVT	3,684	2,099	10,185	10,784	5,817	3,000	3,840	3,312	42,721
Labor Development	EHLD	8,628	7,595	3,000	3,000	3,000	4,221	3,350	3,400	36,194
Development Administration	EHDA	---	---	---	---	---	465	472	---	937
US Institutions (PVOS)	EHPV	---	---	---	---	85	---	1,065	1,202	2,352
Not Classified	EHZZ	---	---	---	---	---	---	---	2,850	2,850
TOTAL APPROPRIATION		30,343	25,148	35,845	29,341	35,827	35,419	47,558	36,869	276,350

PREPARED STATEMENT OF DENNIS BRENNAN, DEPUTY ASSISTANT ADMINISTRATOR FOR TECHNICAL COOPERATION, BUREAU FOR SCIENCE AND TECHNOLOGY, AGENCY FOR INTERNATIONAL DEVELOPMENT [A.I.D.]

Mr. Chairman, Members of the Committee:

I am Dennis Brennan, Deputy Assistant Administrator of the Bureau for Science and Technology, of the Agency for International Development.

I am pleased that, through this hearing, this committee is calling attention to the fundamental value of basic education to the development process. It is an emphasis with which we agree, and one that is timely and important.

A great deal of research supports the view that an educated population is far more likely to reap the benefits of development efforts:

Studies in Africa by the World Bank have shown that farm productivity is significantly increased when farmers achieve just four years of primary school.

Data from throughout the world have consistently shown that a woman's educational level is a powerful determinant of her ability to make informed decisions about family planning.

It is clear that women with basic educational skills are better able to put into practice those actions which are so crucial to the survival and health of her children--better nutritional practices, the use of oral rehydration therapy, monitoring of her child's growth, and the use of immunization services.

In short, an investment in basic education is a catalyst for improvements in agricultural production, in health, nutrition, and in adaptability to new employment opportunities. Education's contribution to the efficiency and effectiveness of investments in other development sectors is profound.

We believe that every nation in the developing world must, in the interest of its long-term future, provide its children with basic education of real quality. And when we look at most developing countries, we find that they share that belief. Education is a major growth sector in virtually every LDC. Educational progress has been extraordinarily rapid in many nations, particularly the nations of Africa which began the 1960's with the sparsest of educational systems. In Somalia, primary school enrollment grew from 23,000 in 1967 to 272,000 a decade later. In Kenya, a 5-fold increase took place. And the same has been true in the nations of Asia and Latin America. In the first 25 years after its independence, Nepal's primary school enrollment grew 50-fold.

With that expansion, however, have come serious problems. As the demand for teachers has grown, the number of well-trained teachers has declined, and teaching quality has deteriorated. Books are in short supply, and classes are crowded. In many countries, a pernicious pattern of repeated failure in the early grades causes schools to be crowded with students repeating the first grades of school, too often unsuccessfully. In other countries, children are automatically promoted, only to leave school with little useful education.

Populations continue to grow, pressing upon school resources, while national financial resources grow at a slower rate or, as is the case in many African countries, actually decline. The financial condition of most countries will not permit present systems to expand at the rate required to ensure full participation by children who will be born in the next decade. The great continuing cost of educational systems are in teachers' salaries, a counting for 90% of annual costs, typically. As a result, a simple expansion of present systems will simply cost too much to be possible.

What then are developing nations to do, and what can the United States, through A.I.D., do best to assist? In a major speech a few months ago, Peter McPherson outlined an approach that is beginning to reshape A.I.D.'s programs. It builds on the reality that little in the way of massive new resources will become available for education, but that large amounts are already being invested by developing nations. The best chance for the developing world is to put those very substantial resources to more efficient use.

There are three elements in the emerging strategy. Let me describe those elements, and work that is underway in each.

1. Improving Educational Efficiency Through Analysis and Research

   The "Improving the Efficiency of Education Systems Project" is currently assisting seven countries to upgrade the efficiency and quality of their primary education systems, through strengthening their capabilities for educational management, policy analysis, planning, and research. Comprehensive national educational assessments, conducted in each country, have had important results. For example, in Somalia the assessment led the government to initiate a major reform of its civil service, and to design a comprehensive strategy for improving primary schooling. In Botswana, a more cost-effective plan for junior secondary schooling has resulted. In Liberia, the result has been an integration of donor assistance at the primary school level, coordinating assistance from the World Bank with that from A.I.D. In Haiti, the education assessment has led to a major project for assisting private primary schools, which enroll most of the children, and to strengthening their management. In Indonesia, the sector review has generated a set of education policy changes to improve the quality and cost-effectiveness of the system, and further assistance is helping to build a decentralized management information system. In the Yemen Arab Republic, the education assessment has led to development of a microcomputer-based information system and has improved allocation of education resources.

Two weeks ago, the top educational officials from each of these countries gathered together for a week in Indonesia, with A.I.D. staff and U.S. experts, to compare progress on their reform efforts. This worldwide policy network is one of the important engines of change in this A.I.D. effort.

The Agency's second "efficiency" project is BRIDGES: Basic Research and Implementation for Developing Education Systems. Through an agreement with Harvard University, A.I.D. is providing education planners better tools to make investment decisions.

The project is building a set of microcomputer--based models to project enrollments and associated costs, locate and quantify resources within and needed by the system at regional and national levels, simulate the effects of various strategies for educational sector growth, and estimate the interaction of these alternative education policies on other sectors. These tools are based on findings from research reviews conducted by U.S. institutions and by third world research centers in Chile, Kenya and Thailand, as well as further research being carried out in participating countries: Burundi, Egypt, Indonesia, Pakistan, Sri Lanka, Thailand and Yemen.

The experience of using this model in Central America illustrates its potential to prompt changes in investment strategy. There, A.I.D. missions in six Central American countries are using the model to measure progress in relation to the Kissinger Commission recommendations. According to official data of the countries, students are repeating grades because there are not enough spaces. However, BRIDGES has shown that students are dropping out, not repeating, because the quality of the education is so poor. As a result, policy leaders are beginning to encourage investments in school quality (teacher training and instructional materials) rather than school expansion.

2. Educational Decentralization and Mobilizing Community Participation

In the American experience, community control of education has been a central dynamic, serving time and again to revitalize education and ensure its relevance to community interests. This tradition has not been strong in most developing nations, although parents share the same motivations for their children's futures. We believe that some of the difficulties being faced in the developing world will be alleviated once parents and their communities are given the chance to become more fully responsible for the conduct and quality of schooling. We are now examining ways to help countries think through strategies to open up their centralized systems, to permit more of this vital sense of local responsibility to emerge.

3. The Use of Instructional Technologies

If primary school teachers are to become more effective--simply minimally effective in some situations--they will need the aid of other teaching instrumentalities. Yet, given the cost constraints on educational systems, there is little budgetary room for the introduction of teaching aids, even textbooks.

Fortunately, there are teaching technologies that are both affordable and effective. Probably the best is radio. A.I.D., for a number of years, has been conducting research and development to introduce into radio the most effective possible instructional techniques. The result has been a system for teaching mathematics, English, and other languages that has shown unprecedented gains in student learning. This system, which we call "interactive radio," stimulates a high degree of student activity and response, creating an engaging situation for students and teachers alike. The leading contributor to A.I.D.'s development of this system is one of the world's leading educators, Dr. Patrick Suppes of Stanford University, who was asked to design a system capturing as much as possible of the power of computer-based instruction in the dramatically lower-cost medium of radio.

The results have been quite exceptional. Students have typically learned 35% more than in their regular classes, in large-scale trials in Kenya, Central America, and Thailand. And costs are as low as can be found for an effective educational intervention. After initial development, national implementation can cost as little as 40 cents per student, per year.

We have put this new radio teaching methodology to work also in providing education where it otherwise would not be available. In remote areas of the Dominican Republic, such a system is instructing children after they end their day's farm work, in meeting places provided by their communities. Local people serve as classroom monitors, while the radio provides good instruction, at 1/3 the cost of conventional teaching. This is a model with substantial relevance to the still-underserved regions of the developing world.

We are working through our A.I.D. missions to bring this affordable and manageable approach to educational improvement into wider, national-scale use. Honduras is one of the countries about to begin such an implementation, in an interesting mode whereby teachers and principals will have a choice about whether they wish to buy into the radio-based system, a market test of its appeal.

Members of this Committee, or their staffs, might have an interest in seeing and hearing the lessons produced under this rather captivating system. We would be glad to make available video and audio tapes that we have produced.

Another promising use of educational radio is in the training of teachers, reaching them in their schools or classrooms. It has the great merit of reducing the amount of time spent in expensive, residential pre-service teaching. It gets new teachers out to their rural schools sooner, and helps develop their skills in the context of their day-to-day work. Such a system is now in use in Nepal, where schools are widely dispersed over very difficult terrain. In addition, a two-way radio is being used effectively for teacher training throughout the Caribbean, in another A.I.D. project.

Let me make a final point with regard to the use of the educational technologies. Whenever we think of the development future in sectors such as agriculture and health, we can realistically envision major improvement over the next decade. We can do so because, in these fields, we routinely assume that technological developments will make important contributions--new vaccines, new seed varieties, and a host of smaller technological gains. Until recently, we have not thought of education as a field where research and the contribution of technology was important. While the human factor will always be fundamental in education, we now recognize that teaching technologies can assist in a very, very significant way. One of the roles of A.I.D. can be to help developing nations begin to bring into education some of the advantages of technology, which in other fields has led to steady increases in productivity and reductions in costs. For these reasons, we are undertaking this major emphasis on radio, as well as experimenting with other technologies, such as teacher-training through two-way telephone links, and the use of microcomputers.

I hope this statement has succeeded in conveying, to the members of this Committee, the increased level of intellectual energy within A.I.D. that is being centered on the issue of basic education.

While near-term budget constraints will limit our involvement, I believe the steps we are taking can lead to a more hopeful future for education, by making far better use of available national resources, by mobilizing the commitment of communities, and by using the power of new teaching technologies. I, and my professional colleagues in A.I.D., will welcome the advice of the members of this Committee.

Peace Corp Volunteers

Since the beginning of the Peace Corps in 1961 until now, education has been and remains the program with the largest number of Volunteers. Over 50,000 Volunteers have worked in education programs in English, teacher training, university education, math, science, special education, pre-school and primary education, physical education, vocational education and adult/nonformal education. Teaching English, science and math at the secondary school level have always been the main emphases of the education program.

As shown in the table below, 71 percent of Volunteers were serving in education programs in 1962. For the period 1962 thru 1986 the percentage of Volunteers in education has averaged 48 percent (weighted average) of each class (excluding years 1981 thru 84). The yearly figures have fluctuated between a high of 54 percent in 1964 and a low of 35 percent in 1985. Last year, 1,900 Volunteers (37 percent) were working in education which indicates that the absolute number of Volunteers in education is still substantial. The Peace Corps is currently working to increase the percentage.

Year	Volunteers in Education		Year	Volunteers in Education	
	Number	% of all PCVs		Number	% of all PCVs
1961	258	34	1974	3,247	50
1962	1,539	71	1975	3,444	52
1963	2,840	60	1976	2,981	51
1964	3,827	54	1977	2,286	41
1965	4,962	53	1978	2,416	45
1966	5,571	50	1979	2,416	46
1967	5,758	47	1980	1,992	40
1968	5,320	49	1981	*	*
1969	4,731	51	1982	*	*
1970	3,579	47	1983	*	*
1971	2,962	44	1984	*	*
1972	2,470	39	1985	1,300	35
1973	2,384	38	1986	1,900	37

* Records lost when PC shifted to ACTION.

Responses to Questions for Dennis Brennan

QUESTIONS SUBMITTED BY HON. TONY P. HALL

Question. What percentage of section 105 account funds are used for participant training? What types of training?

Answer. Fiscal year 1986 actual obligations for section 105 account totalled $181.9 million. A.I.D. obligated $88.7 million, or 49 percent of that amount, to projects aimed primarily at participant training. The training involves administration and managerial education as well as professional and scientific fields, all of which are appropriate for funding under section 105 account. Approximately 60 projects were involved in 30 countries.

Preliminary results of a recent survey indicate total fiscal year 1986 funding expenditures for participant training from all DA and ESF accounts to be $203 million. Approximately one-third of this new start training was funded under section 105 account.

Question. In which countries could A.I.D. expand its involvement in the promotion of basic education efforts?

Answer. A.I.D. is currently developing a strategy for basic education activities in Africa. This indicates the increased emphasis by the Administrator on basic education for the countries in the region. A.I.D. is also planning a large basic education project in Pakistan that will be designed to increase the number of girls attending school.

Question. Please submit for the record the dollar and percentage levels for basic education in the section 105 account over the past 2 fiscal years, and projections for fiscal year 1988.

Answer. Listed below are the dollars and percentages levels for fiscal years 1986, 1987, and 1988. The Africa Development Fund is shown separately.

DEVELOPMENT ASSISTANCE, SECTION 105, EDUCATION AND HUMAN RESOURCES DEVELOPMENT

[Dollars in millions]

	Fiscal year—						Africa Development Fund	
	1986 actual obligation		1987 OYB estimate		1988 request			
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Total	$181.9		$150.7		$123.6		$48.3	
Basic education	48.3	27	33.1	22	25.8	21	17.3	36

PREPARED STATEMENT OF RUTH K. ZAGORIN, FORMER DIRECTOR, OFFICE OF HUMAN SERVICES, AGENCY FOR INTERNATIONAL DEVELOPMENT [A.I.D.]

I. Mr. Chairman and Members of the Committee, I am Ruth Zagorin. From 1981 to 1986 I was A.I.D.'s Agency Director for Human Resources. Last September I retired from Federal service after 8 years to study law.

II. I am pleased to be at this Hearing as a private citizen so that I may share frankly with you my thoughts on the crisis and opportunity of basic education in developing countries, and on the myopia of our foreign assistance program in not addressing adequately worsening basic education needs especially in Africa and South Asia. I will then suggest actions to increase and leverage this country's foreign assistance program to develop human resources.

III. A growing crisis exists in primary education in Africa and South Asia. It threatens all other development efforts in these regions. Quality of schooling is deteriorating in many countries as national budgets are stretched to meet demand for access. Half of the school-age population in Africa and South Asia does not attain the basic literacy and numeracy needed for productive involvement in the development process. We must ask what kind of life these children will have after surviving hunger and malnutrition if they never learn to read and write. It is not difficult to answer: an unproductive life which contributes little to the development of their country.

A. By the year 2000, 80% of the world's population and six of every seven primary school-age children will live in developing countries. The risk is great that the economic and social development of these countries will be seriously jeopardized if the majority of their children do not receive a primary education: become literate and possess other basic skills. The result is foreign aid in perpetuity and world economic, social and political instability.

B. Education is positively linked to productivity in all sectors. Education is related to fertility decline, improvements in health and nutrition status, increases in agricultural production, and the possibility of cottage industries or micro-enterprise development. If we want to encourage democratic systems and effectively assist economic and social development, then we must do all we can to make sure that the vast majority of primary school-age children in the year 2000 can read, write and lead productive lives.

C. Low levels of education and human resource development in Africa are at the core of the region's economic problems.

1. One of every three persons in Africa is of primary or secondary school-age, versus one in six in industrialized countries. There were 62 million primary and secondary shool places in Africa in 1983. This figure would have to reach 110 million by the year 2000 just to maintain participation rates at their unacceptably low 1983 levels: out of every 100 school-age children, 61 had a place in school and 32 finished primary school. For nine African countries, there would have to be more than four times as many places provided by the year 2000 as in 1983 to have every child in school.

2. Female literacy, an important condition for meeting development targets in such areas as nutrition, lower fertility and lower infant mortality, is only 1 in 10 in West Africa. In Somalia in East Africa, only 1 in 16 females is literate.

3. The inefficiency of existing primary education systems in most African countries seriously impedes their effectiveness and jeopardizes their ability to meet coming challenges. These systems are absorbing huge amounts of scarce resources without succeeding in educating enough children to an adequate level. The average repetition rate for African countries is 15%. If repetition rates were reduced to 10%, the money it takes to educate 6 million students (teacher salaries, administrative and capital costs, etc.) would be saved. If current inefficiencies persist, over 50 million of the 120 million new primary enrollees in the next 15 years may drop out after only two years without learning how to read and write. Two years of education for those 50 million children would cost almost $8 billion and would yield little educational or economic benefit. African countries can ill afford to waste $8 billion.

D. In South Asia, too, low rates of female literacy have a profound impact on low agricultural productivity and a very strong relationship to higher fertility rates, and hence, population growth. Evidence indicates that literate farmers are 7% more productive than illiterate farmers. Female literacy in Bangladesh, India, Nepal and Pakistan averages 20%. About 46% of school-age girls are enrolled in primary school and only about 30% of these complete it. The net effect of increasing female literacy from 20% to 75% would be huge gains in agricultural productivity and, combined with skills and attitudes learned in school, better health, nutrition and family planning practices.

IV. Constrained education budgets and increasing demand are a reality and are not likely to change. The challenge is to help these countries use their resources efficiently to achieve both expansion and improved quality.

A. Proper use of U.S. foreign assistance to education is not in the construction of schools or provision of desks and equipment. There is abundant evidence that local communities, in collaboration with central governments, can provide educational settings for their children.

B. Where the U.S. can make a significant contribution is in assisting countries to better target the allocation of their education resources, maximize the effectiveness of the human and fiscal resources the country has, improve the management of education institutions, and improve the quality of instruction and materials within the schools.

The U.S. has the expertise and responsibility to greatly improve the utilization of existing resources in Third World countries and, in the process, to provide more functional, effective education opportunities for a large cohort of students.

V. The U.S. response has lacked vision, cohesiveness and will.

A. In Africa, A.I.D. has primary education projects in only five relatively small countries. In fact, A.I.D.'s assistance for primary education in Africa amounts to less than 1% of the Agency's DA funds. In South Asia, A.I.D. has no primary education projects. Yet, the case has been made beyond refute that basic education is a necessary condition for achievement of many development targets: health, fertility, agricultural production and employment.

B. Contrary to the argument of some critics within A.I.D., the Agency and the U.S. have a large comparative advantage in assisting countries develop their education systems. A.I.D.'s centrally funded initiatives, Improving the Efficiency of Education Systems and Basic Research and Implementation for Developing Education Systems, are two examples of how modest technical resources can leverage much influence on policy and produce concrete and quick results. For example, a Sector Assessment in Somalia resulted in a reorganization of the Somalia Civil Service, and in Central America, research activities resulted in Ministry of Education realignment of education resources from school expansion to improving the quality of instruction within existing institutions.

C. At least half of the innovative research on education is initiated in the U.S. or by U.S. researchers.

D. Areas of strong U.S. comparative advantage in education assistance include education policy analysis, planning, instructional delivery, and decentralization of education management and financing.

E. The U.S., in sharp contrast to other bilateral donors, has made the technical assistance of education planners and technicians -- rather than the supply of expatriate teachers or large-scale school construction -- the backbone of its program. A.I.D. is seen as providing important leadership to donors about effective and efficient means of improving education systems in developing countries.

F. A.I.D. is collaborating with the World Bank in education in Africa and has a great advantage in providing technical assistance in the sector. "Bricks and mortar" account for about 42% of the Bank's total education project costs; furniture and equipment, about 31%; while technical assistance and studies comprise about 20%. Education assistance from A.I.D. is sought particularly in the areas of sector assessment, analysis, and planning for the countries involved. These areas are seen as critical in efforts to improve education system efficiency.

VI. I believe that action must be taken now, in concert with cooperating countries and other donors, including the World Bank, to make the investment in human capital that is the sine qua non of all development. Without a critical mass of literate and basically educated individuals, the work of the coming decades will founder. Progress in education has stopped; the rate at which education systems are declining is up. Efforts today are aimed at staunching the hemorrhage of resources: human, financial and capital. Transfusions and major surgery are needed.

A. What is to be done? Expanding and improving primary education systems will institutionalize literacy for the current and future generations. Although developing country budgets are limited, they spend over $65 billion annually on education and the donors over $2 billion. By focusing a higher percentage of these country and donor funds on primary education, and improving national capacities to allocate these funds and manage the education system, dramatic progress can be made.

B. A worldwide collaborative effort among donors and 15 of the neediest countries, for example, can make it possible to achieve 80% completion rates for 80% of primary school-age children in these countries over the next ten years. If the donor community would focus its education programs and resources on these targets, it could highly leverage modest investments on expanding and improving primary education.

C. Recipient countries must re-examine heavy government subsidy of higher education within their national budgets, find ways to reallocate more resources to primary education which has the highest social rate-of-return to all education investments and be willing to adopt new policies appropriate to their national needs for a greatly strengthened and more efficient primary education system.

D. I applaudded and was grateful for Mr. McPherson's policy-setting speech on education made last June to the Society for International Development. In it he stressed a three-pronged approach to assisting countries improve their basic education: (1) improving system efficiency,

(2) decentralizing educational control and diversifying financing, and (3) using low-cost instructional technology. These are important policy components of an A.I.D. strategy necessary to accomplish this.

E. I see two phases of action. First, A.I.D. can mount an effort with the concerned countries to identify critical constraints in the education system and to improve policy analysis, decision-making, and resource allocation. Second, in consultation with other donors, including the World Bank, develop comprehensive project responses for improving primary education efficiency.

F. What would it take for A.I.D. to move forward? Two years and approximately $650,000 in start-up costs per country would be ample for implementing the first phase: sector assessment, analysis and planning for the human resource needs of the country. At the completion of this phase there would be a workable plan and country commitment for targeting and implementing the primary education improvement phase. Approximately $10 - $15 million per country over a five-year period will be necessary to produce greater efficiencies in the education systems.

VII. Where will these actions take us? What is the promise of results? By reducing repetition and dropout through better management of educational institutions and by improving the quality of instruction that occurs in those schools, we can achieve a goal of 80% of the school-age children enrolled, with 80% of these completing the primary cycle. We must begin this concerted effort now: the children who comprise the primary school graduating class in the year 2000 will be born this year. Getting these children educated, providing them productive skills, is essential if sustained social and economic growth is to occur in the developing world. There is no shortcut for alleviating hunger, malnutrition and poverty.

We must not lose sight of the role that basic, locally-managed education has played in building this country. We need to remember this experience and design a development assistance program which has at its foundation basic education and human resource development.

PREPARED STATEMENT OF DOUGLAS M. WINDHAM, PROFESSOR OF EDUCATION AND PROFESSOR OF PUBLIC POLICY, STATE UNIVERSITY OF NEW YORK AT ALBANY

1. The Meaning of Basic Education

The other testimony presented here today has summarized very effectively the contribution that basic education has been shown to make in promoting national development in general and to alleviation of the personal problems of hunger and of health related to inadequate nutrition. Drawing on my fifteen years of field experience in over twenty countries in the area of the economics of educational development, I would like to concentrate my own comments on three topics:

1. the appropriate definition of basic education;
2. the constraints on improving the efficiency in the provision of basic education systems in most developing nations; and
3. the reason why efficiency enhancement should be the focus of any donor supported policy toward education in the developing world.

The definition of "basic" education is not just a semantic issue; it has substantial political, social, and economic ramifications. The most common definitions of basic education restrict the focus to either the primary cycle of education (varying generally from five to eight years of schooling depending upon the nation) or to formal and nonformal programs that produce a minimum retainable level of literacy and numeracy.

While some define this "basic" education as a "social minimum" or a "basic human right", such declarations ignore the political and fiscal realities of much of the developing world and certainly represent little more than empty slogans for a large majority of the citizens in sub-Saharan Africa. A second objection to this common formulation of "basic" education is that it ignores the programmatic linkages of any educational system and the priority that many nations must attach to what donors have labeled the "immediately productive" sectors.

A more useful definition for the specification of donor and host national government support for education would be a definition of a basic education system. This system would be defined in terms of the nation's available physical and human resources and would concentrate on three forms of derived educational demand:

1. educational demand derived from the requirement to staff the emerging private, public, and parastatal enterprises that may be classified legitimately as "immediately productive" (with agriculture and health training explicitly subsumed within this categorization);

2. educational demand derived from the social desire to maximize equitable access and achievement in the programs designed to provide literacy and numeracy; and

3. educational demand (such as for facilities, teachers, or instructional materials) derived from the need to manage and staff the expansion in participation in the literacy and numeracy programs as well as in the other training and education programs related to the immediately productive sectors.

The advantage of this broader, more systemic definition of what is basic is that it emphasizes the multiplicative effects of any policy decision to expand a particular part of the educational system. Under this definition of a basic education system, a government, facing scarce resources, must decide how to allocate resources between the demands for economic development and the demands of its people for greater access to and continuance in schooling. Whatever the decision, the implications involve the demand for teachers, instructional materials, and facilities. Without due attention to these secondary and tertiary implications, nations will continue to face the harsh if cynical questions as to what is the optimum form of education to prepare a school graduate for unemployment and what is the social or individual value of increased access to a worthless educational system.

2. The Constraints on Expansion of Basic Education

In the last two decades, enormous amounts of donor and host-country funds have expended on educational expansion without achievement of equitable access to schooling or the efficient production of manpower needed for national development. The following emphasis on constraints on basic educational development is not a means to discourage further educational investments; rather, it is an attempt to increase the probability of successful intervention in the existing basic educational systems.

1. Political and Cultural Constraints. Educational systems may be the most conservative social enterprises that exist in developing nations. For all of the rhetoric from the educational extremists of various types, the individual school setting in developing nations is much the same as was the case at independence and much the same as would have been found in Western Europe or the United States in the late 1800's.

In part, this may be due to the residual colonialist influence, but a more important determinant of the survival of teacher-centered, grade level instruction is the fact that the spread of credentialism outpaced educational development throughout the world in the 1940's and 1950's. As a result, politicians in developing nations have faced strong resistance from both teachers and parents in any attempt to move education away from the traditional forms of instruction and evaluation. As to the latter, the development of national or multi-national examination systems may have liberated nations from direct dependence on colonial testing systems but still advanced the institutionalization of the credentialing process.

While individual nations often have insisted on the need for a unique and locally-oriented curriculum for their schools, the need for internal and external standardization has restricted dramatically the ability to innovate in the educational system. Even those nations that engaged in relatively dramatic experimentation with curriculum have drifted back to more traditional educational systems.

In addition to this pattern of conservatism relative to dramatic reform, each developing nation has faced its own internal political and cultural limitations on the enhancement of educational efficiency. The roles of tribal, ethnic, and religious beliefs in the development of attitudes toward education often have been slighted in educational planning exercises. This indicates a need for the application of social marketing concepts to the attempts to remove social inequities in access to and retention in education.

2. Manpower Constraints. Given the political and cultural limitations on educational reform, the single most dramatic constraint on efficiency enhancement in basic education is the manpower situation. In the mid-1980's most developing nations, and especially those in Africa, are still at the beginning of their manpower development activities. Highly qualified manpower remains scarce even where the supply of highly certified manpower is increasing rapidly.

The manpower constraint has an impact on basic education reform in two main ways. First, it limits the quantity and quality of individuals available to serve as teachers and, second, it determines the overall management efficiency of the society (including supervision and administration of education).

In most developing nations from 25% to 50% of the primary school teaching force may be unqualified or underqualified. The lack of qualifications may refer to inadequate formal education (some primary school teachers are only primary school graduates themselves), to a lack of pedagogical training, or to deficiencies in both areas.

As a result, the average primary school teacher may not be prepared to deal with school responsibilities except in a routine and repetitive manner. The infrequency, brevity, and frequent irrelevance of much inservice teacher training has limited this policy alternative in reducing the instructional impact of poor teacher quality. Of course, each country has a number of excellent administrators and teachers in primary education and there is less of a personnel quality problem in most secondary education programs. However, it also is true that those schools in rural and poor areas that require the most capable teachers consistently receive the least capable ones.

The issue of teacher salary and assignment policies will be returned to below in the discussion of incentive constraints. It is adequate to note here that there is little in the assignment, pay, and promotion policies of most educational systems to attract highly qualified individuals or to retain and motivate them if they are recruited. (In this regard the developing nation experience is different only in degree from experiences in the developed world.)

The second manpower constraint relates to management capacity. A shortage of individuals with research, analysis, administration, and supervision skills means that the individual school administrators and teachers receive little effective support from the central or regional offices of the education ministry. As a result, increased responsibility for the day-to-day operation of the school is often delegated to individuals unprepared to assume this responsibility.

A special manpower problem exists in the areas of science and mathematics. Even qualified primary teachers often have serious inadequacies in these subject areas. At the secondary education level developing nations face the same problems as those encountered in the developed nations, i.e., the opportunity costs are so high for anyone qualified in science or mathematics that they rarely become a teacher or, if they do, rarely remain beyond initial periods of bonding for loans or government subsidies.

3. Instructional Materials Constraints. The discussion of schooling as a teacher-centered process often fails to note that for a substantial proportion of the schools in developing nations the teacher is not only the primary but the sole source of instruction in the classroom. Much of the early literature on instructional materials dealt with the problem of localization of materials and the elimination of European or American ethnocentric biases. Unfortunately, a majority of schools in some nations would be willing to accept even such biased materials if they could be obtained, because at present they are operating without any instructional materials.

In Liberia, in 1983, it was found that a majority of classrooms had few if any textbooks and that nationally there was only one textbook for every twenty primary school students. In Somalia in 1984, it was determined that a shortage of 2,280,000 textbooks existed relative to what the national curriculum required for primary education. Even in Botswana, a relatively prosperous nation with a geographically concentrated population and good transportation infrastructure, a survey of schools in 1984 revealed shortages of textbooks and delayed delivery of instructional materials as consistent problems for primary education.

There are three distinct problems related to instructional materials for schools: development, delivery, and utilization. The development of instructional materials (including textbooks and instructional support supplies) ideally should be founded on the national curriculum for primary and secondary education. While large amounts of resources have been devoted by donor agencies to curricular reform and design efforts, many nations still operate with little more than a set of generalized objectives and vague goals. Issues of detailed content and sequence, the information most needed by the classroom instructor, are rarely available from the existing curriculum. Even where such detailed curricula exist, they often are not widely distributed to the teaching force.

With or without a curricular foundation, instructional materials development is further hindered by the scarcity of experienced indigenous authors and by the lack of a manufacturing capacity to reproduce sufficient quantities for national dissemination. The result is a continued dependence on foreign sources of supply or a prolonged period of materials development activity and an inevitable delay in materials being made available to the classroom.

As serious as the materials development problem may be, it is often overshadowed by the problem of distribution. One reason for the consistent inequity between urban and rural populations in educational achievement is that educational materials often are not distributed to the more distant schools. There are geographical, infrastructural, management, and manpower explanations for the distribution problem. Whatever the explanation, a failure to distribute available instructional materials is a source of major systemic inefficiency at the same time that it aggravates the problem of rural/urban and regional inequities.

Finally, in those fortuitous circumstances where instructional materials actually are made available in the classroom, the problem of utilization remains. Too often the distribution process represents little more than a "materials drop" with teachers acquiring textbooks and instructional supplies but no advance instruction in their use. Without proper training or programmed instruction in the use of the materials provided, the effect of materials supply in the classroom will be minimized. Problems range from teachers who are uncertain about whether or how to distribute the materials to teachers who decide it is simpler to continue their teaching as before and ignore the new materials. Any program of intervention based on the current literature's confidence concerning the efficacy of instructional materials must take into account the three aspects of development, distribution, and utilization.

4. Facilities Constraints. The condition of education in developing nations often can be startling. For example, a study in Malawi in 1979 only one pupil in eight had a chair and only one in eighty-eight had a desk. The study noted:

> ...walls frequently collapsed after a rain; roofs had large holes; wind and storms disrupted class activity as a matter of course. The normal classroom was dark and stuffy; students sat on the ground, balancing an exercise book or slate on their knees.

A similar environment for students may be found in many parts of the developing world and for some nations, this environment represents the modal learning environment in rural areas.

A recent World Bank survey of research confirmed earlier analyses that examine the role of facilities quality in determining student achievement. While correlations are found between school building quality or availability of special use facilities (libraries and laboratories) and student achievement, these correlations tend to be small and of questionable significance. While some minimum facility quality undoubtedly is required in most environments, and there is a persuasive case to be made for facilities quality as a constraint on school learning, there is no similar case to be made, intuitively or statistically, for facilities construction as a major vehicle for efficiency enhancement in basic education.

The status of facilities utilization is a more critical issue than the simple availability of schools built to Western standards. The availability problem can be dealt with in the short run by adaptation of facilities designed for other purposes. The 1978 National Education Survey in Liberia found that 43% of the schools were operating in facilities originally designed for other purposes. A significant number of schools already in operation in other countries are sited in facilities that meet minimal if not optimal structural requirements. Even in a case such as Botswana, where 27% of primary school classes are held outside a formal classroom building, this is not as serious a constraint on learning as it may appear. Given the choice of receiving instruction in an overcrowded, poorly designed building or in the open air, many teachers and students will choose the latter where climate and custom permit this alternative.

The question is not whether there is a shortage of facilities given Western standards. Obviously such a shortage does exist in both urban and rural environments. The relevant efficiency issue for basic education is whether construction of an improved facility will enhance learning. Given that the ceteris paribus conditions often include unqualified teachers, little, if any, instructional materials, and the lack of a clearly disseminated curricular format, the skepticism toward facilities development as a solution to the inefficiency and poor quality of basic education appears justified.

The irony here is that facilities development has been the major single focus of bilateral and multilateral assistance to education in developing nations over the last quarter-century. This assistance has aided and encouraged the quantitative expansion of schooling at the same time that significantly less attention has been directed to the internal classroom operations of either the existing or new schools. Only if one accepts a singular goal of providing wider access to poor quality education can these narrowly-based facility development projects be countenanced as an appropriate assistance strategy.

In recent years facilities programs have responded to some of the common criticisms of these endeavors. Many of the examples of new school construction incorporate low-cost designs, use of local materials, and a low-maintenance requirement. Even at their best, however, facilities programs create a preferable precondition to efficiency enhancement but do not qualify as a sufficient (and perhaps not even necessary) precondition.

The long-term solution to the facilities problem is going to require a mobilization of local rather than national or international resources. Such a policy shift will involve loosening or abandonment of national construction standards and the possibility for continued differences or even inequities in facilities quality among regions or individual schools. However, a locally-oriented responsibility for school construction and maintenance would promote efficiency by increasing the number of schools that meet at least the minimum standards required of facilities. In addition, such a reorientation of responsibility would free other funds to be used for more direct means of enhancing quality and efficiency.

5. Incentive Constraints. The systems of basic education in developing nations exist within sets of complex configurations of incentives. These incentive sets range from the employment and wage or salary incentives of the national labor market to the specific behavioral incentives that affect teacher and student performance in the classroom.

Two major problems exist relative to incentive effects in education. First, do planned incentives have their desired effect and, second, do unintended incentives exist that promote counter-productive behavior? An example of the first problem exists in terms of the paucity of information available to the student, family, and often even to the teacher on labor market requirements for school leavers. In many cases, even the requirements for advanced academic, vocational, or technical education are unavailable to students and families in making their choices of academic programs.

An example of unintended incentives exists in the bureaucratic system which requires similar or identical pay for teachers regardless of their subject specialization or job location. A failure to provide salary or other incentives to those teachers with skills marketable outside the teaching profession (science and mathematics specialists or vocational/technical craftsmen) will mean that the system will face a continuing shortage of such personnel. A failure to provide salary supplements or other compensation for teachers assigned to rural areas will lead to shortages and/or a rapid turnover of personnel assigned to such schools.

Educational planners need to be concerned with the incentives for individuals to become and remain teachers; in many cases the incentives are stronger to become a teacher trainee than to remain a teacher after the training period is complete. With training stipend, food, and housing provided while in training, some trainees may face a lower real income after graduation than before. Furthermore, when the transition to first teaching assignment is delayed because of the bureaucratic appointment and payment process (a transition that takes most of one year in some systems) many of the best teacher training graduates find uses for their skills outside the teaching profession. Even where bonding regulations and required periods of service are strictly enforced, one only postpones the inevitable attrition of the best personnel from the teaching force. When able teachers depart from the profession, a part of the training investment is wasted and the schools remain without qualified personnel.

One of the most disturbing effects of the incentive structure in education is the convergence of conditions that lead to discouragement of able and motivated teachers. Some of the constraints noted above--facilities, instructional materials, and community attitudes--can impose a harsh burden on a new teacher.

The nature of teacher assignment policies is such that new teachers--who are in the most need of on-the-job support and guidance--frequently are assigned to the most difficult schools. Some new teachers find themselves in single-teacher, multi-grade schools in areas where culture, religion, and even diet may be dramatically different from their own. The results range from poor motivation to high absenteeism to outright abandonment of the school by the teacher.

The design of effective incentives for any education system is an evolutionary process. It requires recurrent review, analysis, and reform. However, with the exception of changes in salary levels, little explicit attention appears to have been paid by planners and administrators to the incentive phenomena as sources of efficiency constraints for basic education.

6. Attitudinal Constraints. Schools and school systems throughout the developing world face a special set of constraints in terms of the standards and expectations of administrators, teachers, parents, and students. Each actor in the school process may and probably does view the process in a different manner. The administrators are concerned primarily with issues of stability and quantitative standards of performance; the teachers are concerned primarily with the behavior and academic performance of those students within their direct responsibility; the parents are concerned with the achievement of their child in a relative as well as absolute sense; and the individual pupils present a vast array of personal concerns that are unlikely to be fully congruent with those of any of the other individuals involved in the schooling process.

It has been hypothesized that family perspectives toward schooling were due to three sets of influences. These were household factors (parents' education and income), economic environment factors (school costs, wage rates, returns to schooling), and factors related to what were called "unobserved preferences." These preferences were assumed to be a function of social norms, family structures, and culture.

These preferences become the source of the variation in accepted standards of behavior and academic performance that occur even in a single community school but are a major factor in a national educational system. Part of education's traditional "hidden agenda" has been to bring a greater standardization to the range of attitudes that parents and children have toward schooling and other social processes.

An example of how these preferences and attitudinal factors can act as a constraint is the difficulty of introducing objective evaluation into a community with an explicit hierarchy of social status. The teachers who assign grades based on school performance alone may find themselves under strong pressure from the community elite. The uneasy acceptance of meritocratic bases for assignment of social roles that one finds in Western society is not always reflected within the village life of a developing nation.

Attitudinal factors also have a strong deterministic role in how well teachers accept proposed instructional innovations. There may be a strong resistance to experimental learning systems for basic education if the result is greatly increased time demands on teachers. A more dramatic attitudinal effect has been observed in the frequent resistance by inexperienced teachers to national dissemination of television or radio instructional programs.

The incidence of failure of these programs (in terms of dissemination if not experimentation) is due to an inability or unwillingness to appreciate the teachers' strong preference for control of their own classroom and teachers' fears that the new technology will become a substitute rather than a complement for the traditional role of the classroom teacher. The new generation of instructional technology (involving calculators and computers) will face similar resistance if planners and implementors do not include consideration of attitudinal constraints in their strategy for efficiency enhancement.

7. Management Constraints. The manpower problem as a limitation on management capacity was discussed earlier. In this section, the focus is on the structural and bureaucratic factors that limit efficiency enhancement in basic education in developing nations.

In addition to the shortage of trained manpower, the major managerial constraints on basic educational efficiency stem from: (a) an inappropriate information and incentive system; (b) the lack of explicit and quantifiable goals; and (c) the state of technological advancement in the area of data management.

Most education ministries operate with a hierarchial decisionmaking system headed by a minister who is more likely a political official than an educational professional. Most procedural decisionmaking is concentrated at the level of the permanent secretary or director general; this person is normally the senior professional in the system. The nature of information and incentives in the developing nations is such that an excessive amount of decisionmaking is placed at the level of the permanent secretary. Among the reasons for this are the inadequate training and experience of subordinates, the reluctance by subordinates to bear responsibility for decisionmaking, and the desire by senior officials to control even routine ministerial operations. The result of this process is that delays occur; the ultimate decisionmaker is further removed from the actual event, and thus, often less well informed than a subordinate decisionmaker would be; and no one is left with time available to deal with the long-term planning concerns that should be the primary responsibility of the senior administrator. The problem in most developing nations is not that educational systems are hierarchial, but that there is not an efficient allocation of authority and responsibility among the levels of the system.

Any management system would suffer from a lack of explicit goals. Accountability requires that both the practitioner and administrator agree as to the desired outcomes of the system. Ministries of education serve many functions in addition to that of instruction: they are major sources of public service employment, they are the most widely disseminated examples of central government largesse, they may represent a political network of government representatives, they are distribution points for information and propaganda, they are day-care centers for children of the urban employed, and they are centers of community activities. With such a multi-output institution and with no indication of the desirable rates of tradeoff among these outputs and the multiplicity of the specifically instructional outputs, the constraint on management evaluation is obvious. The result has been that easily quantifiable factors--number of schools, number of students, number of teachers, pass rates, attrition/repetition levels, and examination scores--have dominated in the formal evaluation of basic educational management.

The third facet of management constraint is the state of technological advancement. In most educational agencies the quality of data collection (as rudimentary as it may be) is far superior to the analysis and dissemination of data. At a time when the availability of microprocessing equipment is increasingly affordable, many planning units continue to work with desk calculators or to wait for infrequent access to mainframe computers. The need for data-based decisionmaking is an obvious one, but is restricted by the lack of accuracy and timeliness with which data analysis can be conducted. An additional need in this area is for more and better training of policy analysts in doing iterative provisional analysis of data in the time frames normally encountered in ministry work. Traditional conservative research techniques simply are not always applicable to the time frames allowed for much of the policy work done in government ministries and research support agencies.

8. Infrastructure Constraints. For someone who has not had the experience of field work in rural Africa or Asia, the constraint that is easiest to overlook is that of the infrastructure (i.e., the roads, highways, telephones, and other communication systems that are taken for granted in more developed societies). The nature of the environment in certain sub-Saharan nations is such that a significant number of schools cannot be reached by road vehicles for several months each year because of the effects of seasonal rains and the consequent flooding. The geographic isolation of certain other schools makes them difficult to visit at any time during the year.

The condition of roads and highways (where they do exist) are normally such as to require much greater time and energy for travel than for the same distance in a developed nation. Telephone and other telecommunications systems are well developed in cities such as Jakarta and Nairobi, but elsewhere, even in Indonesia or Kenya, one will face uncertain availability and unreliable quality of service. In less wealthy nations, the telecommunications contacts can be unreliable even in the capital cities.

A special constraint on the use of the new informational technologies involving computers and related equipment is that machines have to be adapted to deal with both power surges and failures. The result is that the cost of installation, maintenance, and operation of such equipment is higher than in Western Europe or the United States. A more generic problem is the lack of a repair and parts replacement system for all types of equipment from vehicles to computers.

The purpose here is to stress the danger of false assumptions about what can be done in the implementation and administration of efficiency enhancement projects in basic education systems. All designs of reform efforts must be predicated on the probability of delays in delivery and communication. Any project involving interaction between central personnel and schools will have to take into account the serious infrastructural barriers that exist. Project designs in education have been consistently under-funded for both implementation and evaluation activities. The history of basic educational projects in developing nations is weighted with failures; however, a majority of those failures were caused as much by problems with the implementation design as with the behavioral conception of the projects. Such failures will continue as long as project conception and design is undertaken by individuals unfamiliar with the realities of the social environment and especially the constraints imposed by the nature of infrastructure in urban and rural areas.

9. Donor Assistance Constraints. To this point the discussion of constraints on efficiency enhancement have concentrated on the indigenous limits within developing nations to attempts at educational reform. It is only fair to direct some attention to the external influences that have led to some of the barriers to efficiency one encounters. The effect of the colonial heritage was mentioned in passing in an earlier section; in many nations, European systems of education have been adopted. In some cases the adoption has been *ad hoc* and at other times complete with curricular standards and examination systems. The concern here is not with the oft-stated questions of the ethical propriety of this cultural intrusion but rather with its functional propriety.

Developing nations, often operating with per-capita income levels comparable to those of the late 1800's in most of Europe and the United States, have been expected to mount educational systems nearly contemporary with those of the donor nations. In addition, programs of social inclusion for rural populations, women, ethnic and religious minorities, and the physically and mentally handicapped have been urged on these nations by representatives of societies that themselves have only recently begun to deal with these issues. One does not need to be a dedicated student of history to recognize that programs of social inclusion in the West followed rather than inspired the major periods of economic development.

In fact, to the extent that the educational inequalities of the 1800's promoted large scale capital accumulation, there is a legitimate question as to whether the current levels and types of educational expenditure in developing nations do not represent potential restraints on, rather than sources of, economic development.

These countries are being asked to serve as an experiment to test whether development can occur without the concomitant inequalities that have existed elsewhere in the past. The nobility of this goal is slighted, however, by the fact that since the early 1950's little success has been achieved in either economic growth or social inclusion. When it has occurred, the social inclusion success has often meant simply that wider access has been gained to a school experience of marginal if any value.

The concern here is less with the strategy of the national leaderships and more with the hypocrisy of the donor agencies. The developing world has served as an experimental laboratory for everything from modularized instruction to "lifelong learning." Long run incremental strategies for educational development have been sacrificed to allow for the ad hoc interventions of Western educators. The attention span of domestic politicians and donor administrators has been such that these experiments--many of which had potential for improving school instruction or system performance significantly--were rarely translated into fully disseminated systems. As a result, one educational novelty has succeeded another with little evidence of an accumulation of experience or wisdom. The facilities emphasis of donors is one of the few examples of a long-term orientation in donor policy. While even these activities have been idiosyncratic within individual nations, the attractiveness of facilities projects in terms of finite obligations and visible signs of accomplishment has made them one of the rare long-term strategies evidenced by most donor organizations.

In addition to the factors mentioned above, the most common characteristic noted in regard to donor behavior is the lack of inter-donor coordination of activities. Although substantial progress has been made in regard to donor coordination in the last five years, the continuing fragmentation of donor efforts has had two major negative effects.

First, the development plan for education in a developing nation is less likely to be an intuitively-derived strategy on the part of the host nation's planners and more likely to be a catalog of those activities donors have expressed a willingness to support. Even where a systematic independent educational development plan is produced, the implementation of various parts of the plan soon becomes dependent upon the garnering of donor support. The need for matching funds for donor-assisted activities leaves little domestic capital for support of other development activities which have not found favor within the donor community.

The second negative aspect of donor fragmentation is the effect of uncoordinated program initiatives on recurrent cost obligations of the host governments. Even with grant contributions and concessionary loan terms, the host government often remains burdened by significantly higher cost obligations as a result of donor activities. Increased recurrent cost burdens are a dramatic characteristic of facilities expansion and teacher training initiatives. The latter can be especially problematic in that the host government is left with the cost of continuing the new preservice or inservice training programs while incurring new or increased salary obligations for the teaching force.

The effect of the constraints imposed by donor behavior can be offset in part by a greater exercise of discipline and authority on the part of the host governments. There needs to be a greater willingness to say "no" or, alternatively, for the host government to play a more active role in the design and justification of project activities. Also, increased coordination should not be understood to mean only coordination among the donors, but improved coordination with the host government's long-term educational plans. Otherwise donor cooperation may be viewed as a conspiracy among the donors against the interests of the host nation. The ultimate goal of any truly coordinated program should be to develop a full and equal partnership between the donor community and the host nation to replace the present advisor/client relationship that exists in a majority of developing nations.

10. Financial Constraints. The discussion of financial constraints has been left to last, in part, because they are the most obvious constraints. However, it is more important that it be understood that alleviation of the financial constraints will do little to improve the educational system unless the other aforementioned constraints are dealt with as well. The solution to educational problems is not likely to come--or should it come--simply from more funds being made available. The solution must be found in the more efficient use of the resources already invested in the system. Once efficiency in the use of resources is achieved, it will become easier to justify greater resource requests for education and the funds allocated will be assured of having a greater effect on school and school system outcomes. For the last two decades, new expenditures have been used to remove or disguise the effect of the school system's inefficient design and operation. In the next two decades efficiency enhancement should become a prerequisite for new allocations of funds.

The debate over new funding versus efficiency enhancement may be moot in most countries for the remainder of this century. The vast majority of the developing nations do not have the choice of using large, new allocations of funds for basic education. Aggregate economic stagnation combined with increasing demands from other social sectors (especially in the areas of health and population) and from the economic infrastructure will force most nations to choose between increased efficiency or a further qualitative (and perhaps even a proportional quantitative) decline in educational services.

The largest source of funds for education remains the host nation. The largest item of expenditure will remain teacher salary costs. The needs of the society are not served either by increasing the quantity of unqualified teachers or by simply raising the pay of the existing population of unqualified teachers. Any analysis of fiscal investment alternatives or efficiency enhancement activities must begin with the reality of the teacher-centered classroom process. The challenge for the remainder of this century is to increase the efficiency of the teacher-centered process within the wide range of constraints discussed here.

3. The Role of Efficiency in the Quality/Quantity Tradeoff in Basic Education

Since the major expansion of educational systems in developing countries began in the late 1940's and early 1950's, the predominant means of financing the large-scale increases in enrollments have involved (1) new levels and sources of funding, (2) increasing efficiency in the use of available funds, and (3) an inherent acceptance of poor quality of instruction and inequity in access to education. The dramatic increases in enrollments that occurred in the 1960's and 1970's were financed predominantly by the first of these three alternatives. Both domestic and foreign aggregate expenditure for education rose in this period and most countries were able to achieve increases in per-student expenditures.

However, the economic stagnation for the developing world that began with the international recession of the mid-1970's has now led to a situation where traditional domestic and foreign sources of funding are inadequate to support continued expansion and, in an increasing number of cases, will be unable even to maintain current standards of access or of instructional quality. For example, in the last twenty years over 50 million new students have been enrolled in African schools; however, in the next twenty years approximately 110 million new students will become eligible for enrollment. National educational systems throughout the developing world will be hard pressed to meet these new quantitative demands. Without increased efficiency, the possibility for quality improvement is highly unlikely given the resource levels that will be allocated to education.

This pattern of restrained financial resources for education does not suggest a lack of commitment on the part of the individual nations or of the bilateral and multilateral donors. In fact, under fiscal pressure, governments have tended to protect education and the other social services at the expense of the infrastructure and production sectors. However, with most countries already allocating significant portions of their recurrent budget to education, it is unrealistic to expect major new allocations given the competing demands from the other social and economic sectors.

The converging influences of slow economic growth (aggravated first by the oil crisis and more recently by increasing levels of debt repayment obligations) and the high population growth rates (the developing countries have the fastest growing populations in the world) have combined with internal political conditions to produce in most nations an educational crisis that poses both immediate and long-term problems for the domestic educational planner/administrator and for the international support agencies.

Obviously, this general pattern of crisis development hides individually divergent patterns in the developing world. However, even the current "successes" of the developing world may represent only potentially transient conditions; all developing countries face severe barriers to initiation or continuance of economic progress from the immediate challenge of educating their rapidly expanding populations and, eventually, from the even more dramatic challenge of employing their citizens in some useful manner.

Thus, the quandary faced by most developing societies, for at least the remainder of this century, is to make a choice among the three means of financing continued educational development without jeopardizing the nation's future social or economic stability. With most forecasts indicating little new domestic funding other than that required to maintain pace with inflation and, in the more favored nations, with increases in the school age cohort, the choice for policymakers will be between increased efficiency in the use of available resources or the acceptance of declining standards of access, equity, and academic achievement. While in the abstract the choice would appear to be an obvious one, the history of educational development over the last two decades would suggest that policymakers often have been forced to accept quality deterioration in schools as a means of financing aggregate educational expansion. The concern here is not with the quality/quantity option as a short run means to an end (U.S. and Western European nations encountered similar quality versus quantity issues in the last two decades), but with the long term dislocations that an educational expansionist policy can create in a country facing continuing fiscal constraints.

The danger for the school systems in developing countries is that quality sacrifices made now may not be removed or ameliorated in the near future. In fact, the more rapid the expansion of education the more difficult will become the problem of eventual quality enhancement. As poor facilities are built, undertrained teachers are employed, and inappropriate curricula and instructional materials adopted, the school systems of the developing world will become more inflexible and more resistant to quality improvements. At the very least, a short term policy that allows expansion at the exclusion of quality improvements will increase substantially the eventual price of quality enhancement. The major fear is that by the beginning of the 21st century it will be beyond the ability of most developing nations to pay that price.

4. The Role for Donor Assistance

This brief review of the issues of basic educational development can hardly provide conclusive recommendations on the scale and nature of the appropriate remedial steps. Three issues should be clear, however. First, donor activity in basic education must be coordinated both within and among the donor agencies so as not to fragment and waste host-country resources. Second, donor activity should be designed to have a maximum leveraging effect through increasing the efficiency of systemic management and policy activity as well as the efficiency of the direct delivery of instructional services at the individual classroom level. Finally, third, donor activity in basic educational systems must be long-term commitments that emphasize collaboration with host country officials at a variety of administrative levels. There is no quick or easy solution to these problems but a continuing program of cooperation functioning within a systems context and with a focus on the efficient use of system resources offers a high probability that the basic education system will become a concomitant and perhaps even on accellerator to development and not the retardant to development it is in so many countries today.

Finally, in recognition of the Task Force's central interest in the issue of world hunger, I would like to conclude by emphasizing that just as food and nutrition programs are required to keep a child alive, so improved basic education systems are required to give more children productive and useful lives. Properly designed, the development of basic education systems can begin to alleviate the need for externally-funded food programs as a generation of appropriately educated citizens move toward self-sufficiency in agriculture and true self-determination in terms of their political future.

○